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ABSTRACT

The Objective-Item Bank presented covers 16 sections of four subject areas in each of four grade levels. The four areas are: Language Arts, Math, Social Studies, and Science. The four grade levels are: Primary, Intermediate, Junior High, and High School. The Objective-Item Bank provides school administrators with an initial starting point for curriculum development and with the instrumentation for program evaluation, and offers a mechanism to assist teachers in stating more specifically the goals of their instructional program. In addition, it provides the means to determine the extent to which the objectives are accomplished. This document presents the Objective Item Bank for intermediate science. (CK)

ED 066506

INTERMEDIATE SCIENCE
BEHAVIORAL OBJECTIVES AND TEST ITEMS

EVALUATION FOR INDIVIDUALIZED INSTRUCTION

A Title III ESEA project
administered by
Downers Grove, Illinois
School District 99

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EDUCATION & WELFARE
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individualized instruction • inservice workshops to improve skills in evaluating new programs • pupil progress

EI

1406 West Maple Avenue
Downers Grove, Illinois 60515
Phone: 312-971-2040

	Lang. Arts	Math.	Soc. Stud.	Science
Primary				
Intermediate				X
Junior High				
High School				

TM 001 990

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INTERMEDIATE SCIENCE

BEHAVIORAL OBJECTIVES AND TEST ITEMS

by Dr. Marcus Lieberman, Director
Dr. Les Brown, Project Associate
Mr. William Neidlinger, Project Associate
Mrs. Linda Swanson, Project Associate

Evaluation for Individualized Instruction Project
AN ESEA TITLE III PROJECT
Administered
by
Downers Grove Public School District 99

BEHAVIORAL OBJECTIVE - TEST ITEM BANK

BACKGROUND

The Evaluation for Individualized Instruction Project, an ESEA Title III project administered by the Downers Grove, Illinois, School District 99, has developed an Objective-Item Bank covering sixteen sectors of four subject areas in each of four grade levels.

Subject Area

	LA	MA	SS	SC
1	11	12	13	14
2	21	22	23	24
3	31	32	33	34
4	41	42	43	44

LA = Language Arts
MA = Math
SS = Social Studies
SC = Science

1 = Primary
2 = Intermediate
3 = Junior High
4 = High School

Nearly 5000 behavioral objectives and over 27,000 test items based on these objectives were recently published as the culmination of this three-year project. The complete output of seventeen volumes totals over 4500 pages. These publications have been reproduced by the Institute for Educational Research to make them available at cost to teachers and administrators.

The objectives and items were written by over 300 elementary and secondary teachers, representing forty Chicago suburban school districts, who participated in workshops of three to nine weeks duration throughout the project. In these workshops they learned to write effective behavioral objectives and test items based on the objectives. The results of their work were edited for content and measurement quality to compile the largest pool of objectives and test items ever assembled.

PRINCIPLES AND MERITS

Unfortunately, the Objective-Item Bank is often viewed mainly as a source of test items. Although this is an important function, its greatest potential impact lies not in the availability of a multitude of test items, but rather in the ability of these items to measure carefully selected educational goals.

The almost frenetic search for test items on the part of some educators has been spurred by the current emphasis on measurement. Some educators have become so enamored with measurement that they seem more interested in obtaining a numerical index than examining what they are really trying to measure. Further, it is not unusual for teachers to speak about a child obtaining a score of 95% on a particular test. Frequently, they encounter considerable difficulty in interpreting the real meaning of a score and are content to just accept its numeral value. A much more important question would seem to be: What are our goals of measurement? Unless we can answer this question precisely, the only real purpose that testing serves is to gather data concerning pupils to facilitate the marking of report cards. This is not to say that this function is not legitimate - it is rather to say that such a view of measurement is much too constricting. The goal of measurement should be to provide feedback both to the teacher and the child regarding the success or failure of the learning experiences in realizing specifically stated objectives.

One of the main strengths of the EII Objective and Item Bank is that all the items are directly tied to specifically stated objectives. Each group of items is designed to measure a specific objective and therefore provides the means whereby the teacher can obtain feedback on the success of the educational program.

It is disheartening to observe so many districts attacking the complex problem of curriculum development independently. One cannot help reflecting on the mammoth duplication of efforts involved. The Objective-Item Bank offers a possible alternative to this duplication. Utilizing its resources, the curriculum committee is provided with some point of departure. The efforts of three hundred teachers participating in the Evaluation Project's workshops and the thoughts of forty districts can be evaluated and utilized. This is not to suggest that any set of objectives should be viewed as the "answer" to an individual district's curricular problem but rather the efforts of others offer a convenient point of departure and may serve to stimulate diverse opinions about the direction of curricular thrust within the individual district. The words of Sir Isaac Newton seem appropriate; "If I have seen further, it is by standing upon the shoulder of giants." The efforts of others, whether we consider them giant-like or pygmyish, do offer a threshold to view the immense, complicated problem of curricular development in better perspective.

The title of an article in a recent educational journal, "If You're Not Sure Where You're Going, You're Liable to End up Someplace Else," succinctly describes a continuing dilemma in our educational system. The vagueness of our goals often promotes the idea that "anything goes." Without a guiding beacon many classrooms become activity-centered rather than goal-oriented. One educator recently compared the all-too-typical classroom with Henry Ford's observation concerning history. He defined history as, "One damned thing after another." Is this true of the succession of activities within our classrooms? Does the teacher really know the educational purpose of each activity? Perhaps, even more importantly, do the children know the purpose?

The Objective-Item Bank offers a mechanism to assist teachers in stating more specifically the goals of their instructional program and further provides the means to determine the extent to which the objectives are accomplished. The specification of goals assists the teacher in discovering whether favored activities advance learning, or are merely time fillers; whether they get the "materials" across, or are merely perfunctory exercises.

Much discussion has been devoted to the topic of "Why individualized instruction?" and occasionally some dialogue has even centered on the "how." But an even more basic question is one that is often ignored: "Individualize what?"

Many school districts mention their individualized programs in reading or mathematics. What is individualized within these programs? Are certain skills definitely identified? Is the practice of pretesting to determine the child's level of proficiency when he enters the program a guideline?

The Objective-Item Bank has two potential contributions to make to all school districts embarking on or presently engaged in individualized instruction programs. These contributions are: 1. A group of well-specified objectives which could form the "what" of the program. 2. A set of items designed to provide information on the degree of mastery of the objective.

APPLICATIONS AND TECHNIQUES

The versatility of the Objective-Item Bank is evident in the value and usability by both teachers and administrators.

To the Administration the Objective-Item Bank:

1. Provides an initial starting point for curriculum development. The existence of many objectives avoids the necessity of each district duplicating the efforts of another. The task of the curriculum committee becomes one of selecting and/or rejecting objectives from the Objective - Item Bank and then supplementing them with objectives developed at the local level. Past-participants of the Evaluation Project workshops would be valuable resource people in this endeavor.

2. Provides the instrumentation for program evaluation. The selection of items from those objectives representative of the main emphases of the local district provides the framework for the evaluation of the stated goals.

To the Teacher the Objective-Item Bank:

1. Provides the pooling of talent and imagination of teachers of varied experience and interests, thus avoiding the present duplication of effort.

2. Provides resources for more highly sensitized program evaluation instead of a battery of standardized tests. Since the objectives are tailored to the program, the associated test items can be used to determine precisely the efficacy of the instructional materials.

3. Provides the means whereby the teacher can become more acutely aware of that which he is seeking to have occur in his classroom and that which he will accept as evidence of its occurrence. Hopefully, as teachers become more aware of their goals, they will share these

objectives with children and let the pupils become acutely aware of that which is expected of them, ergo allowing them to seek their own modality of instruction for the realization of the stated goals.

4. Provides the nucleus of an individualized instruction program.

   a. It provides for more precise curriculum planning by differentiating those goals specific to each grade and even to each student. With the bank at their disposal, teachers are encouraged to become aware of their responsibilities in developing a set of basic objectives which every child must attain and a further set which can be pursued according to the students' abilities and interests.

   b. It provides several items per objective, some of which may be used as a pre-test to discover whether a student should undertake that objective while the remainder may be employed to measure the mastery of those students who do tackle the objective.

NOTES

Several of the volumes have been reproduced from punched cards by the IBM 407, a machine which does not print all characters exactly as they appear on a typewriter. Thus:

% is actually (

⌑ is actually)

0 is actually ? or !

Apostrophes cannot be printed.

The number immediately after the statement of each objective represents the number of items measuring attainment of that objective.

Information on the EII publications or purchase requests can be directed to:

INSTITUTE FOR EDUCATIONAL RESEARCH
1400 West Maple Avenue
Downers Grove, Illinois 60515

CHARACTERISTICS OF BODY SYSTEMS

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE DIFFERENCES BETWEEN ORGANS AND SYSTEMS BY IDENTIFYING CHARACTERISTIC STATEMENTS APPROPRIATE TO EACH. %4□ 0003

CHOOSE THE CORRECT ANSWER. 1

AN ORGAN IS MADE UP OF A NUMBER OF 9
A. SYSTEMS 2400009
B. JOINTS
C. BONES 2400009
*D. TISSUES 2400009

THE HEART AND LUNGS ARE 2400010
*A. ORGANS 2400010
B. SYSTEMS 2400010
C. CELLS 2400010
D. TISSUES 2400010

A NUMBER OF ORGANS WORKING TOGETHER FORM A 2400011
A. CELL 2400011
B. TISSUE 2400011
*C. SYSTEM 2400011
D. SKELETON 2400011

THE STOMACH IS ONE OF THE ORGANS OF YOUR DIGESTIVE 2400012
A. GLAND
B. SET
*C. SYSTEM 2400012
D. CELL 2400012

****

THE STUDENTS SHOULD IDENTIFY ANY OF THE SIX SYSTEMS FROM A DESCRIPTION OF THE SYSTEM. %4□ 0005

CHOOSE THE CORRECT ANSWER. 1

NUTRIENTS AND OXYGEN ARE CARRIED BY WHICH OF THE FOLLOWING SYSTEMS0 0015
A. NERVOUS 2400015
B. RESPIRATORY 2400015
*C. CIRCULATORY 2400015
D. SKELETAL 2400015

THE TWO SYSTEMS WHICH ASSIST *MOST* IN THE PROCESS OF MOVEMENT ARE 0016
A. CIRCULATORY AND RESPIRATORY 2400016
*B. MUSCULAR AND SKELETAL 2400016
C. MUSCULAR AND CIRCULATORY 2400016
D. SKELETAL AND RESPIRATORY 2400016

WHICH SYSTEM IS ENTIRELY MADE UP OF BONE0 0017
*A. SKELETAL SYSTEM. 2400017

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  B. MUSCULAR SYSTEM.                                                    2400017
  C. NERVOUS SYSTEM.                                                     2400017
  D. RESPIRATORY SYSTEM.                                                 2400017

THE MOUTH, THROAT AND ABDOMINAL REGION OF THE BODY COMPRISE A               0018
PART OF THE                                                                   18
  A. NERVOUS SYSTEM.                                                     2400018
  B. EXCRETORY SYSTEM.
 *C. DIGESTIVE SYSTEM.                                                   2400018
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THE STUDENT WILL RECOGNIZE THE INTER-RELATEDNESS OF HUMAN SYSTEMS           0281
BY DETERMINING CAUSATIVE RELATIONSHIPS.  %3¤

CHOOSE THE CORRECT ANSWER.                                                     1

A MALFUNCTION OF THE EXOCRINE GLANDS WOULD MOST AFFECT                   2400622
 *A. DIGESTION.                                                          2400622
  B. HEART RATE.                                                         2400622
  C. HEARING.                                                            2400622
  D. GROWTH.                                                             2400622

WHICH TWO SENSES ARE MOST CLOSELY RELATEDO                               2400624
  A. SIGHT AND HEARING                                                   2400624
 *B. TASTE AND SMELL                                                     2400624
  C. TOUCH AND FEEL                                                      2400624
  D. SIGHT AND TASTE                                                     2400624
  E. HEARING AND TOUCH                                                   2400624

YOUR SENSE OF BALANCE WOULD MOST LIKELY BE HURT IF WHICH OF              2400625
THESE SENSES WAS DAMAGEDO                                                2400625
  A. HEARING                                                             2400625
  B. SIGHT                                                               2400625
 *C. TOUCH                                                               2400625
  D. SMELL

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                            DIGESTIVE SYSTEM


THE STUDENT WILL KNOW THE ACTION OF THE TEETH AND SALIVA UPON               0019
FOOD IN THE MOUTH BY SELECTING THE CORRECT ACTION OF THE TEETH
AND SALIVA.  %3¤

CHOOSE THE CORRECT ANSWER.                                                     1

SOLID PIECES OF FOOD ARE BROKEN UP BY THE                                2400073
  A. TONGUE.                                                             2400073
  B. JAWS.                                                               2400073
 *C. TEETH.                                                              2400073
  D. THROAT.                                                             2400073
```

FOOD. THESE ARE CALLED THE ..... GLANDS. 2400074
A. SWEAT 2400074
*B. SALIVARY 2400074
C. THYROID 2400074
D. ADRENAL 2400074

THE FLUID SECRETED BY THE GLANDS WHICH MOISTEN THE FOOD IS CALLED 0075
A. PERSPIRATION. 2400075
B. THYROXIN. 2400075
C. ADRENALIN. 2400075
*D. SALIVA. 2400075

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THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE DIGESTIVE PROCESS BY SELECTING THE SEQUENCE IN WHICH THE BREAKDOWN OF PROTEINS TAKES PLACE IN THE STOMACH. %1¤ 0021

CHOOSE THE CORRECT ANSWER. 1

PROTEINS ARE TEMPORARILY STORED IN THE STOMACH WHERE FURTHER 2400077
DIGESTION TAKES PLACE. AFTER THIS 2400077
A. THE BREAKDOWN OF PROTEINS BEGINS WITH THE AID OF THE 2400077
GASTRIC JUICE CALLED PANCREATIC JUICE. 2400077
*B. THE ENZYME PEPSIN FOUND IN THE GASTRIC JUICE BEGINS THE 2400077
BREAKDOWN OF PROTEINS. 2400077
C. THE GASTRIC JUICE CONTAINS AMYLASE WHICH BEGINS THE BREAK- 2400077
DOWN OF PROTEINS. 2400077
D. LIPASE AN ENZYME FOUND IN THE GASTRIC JUICE BEGINS THE 2400077
BREAKDOWN OF PROTEINS. 2400077

****

THE STUDENT WILL DEMONSTRATE HIS ABILITY TO UNDERSTAND THE PROCESS OF DIGESTION BY SELECTING WHAT HAPPENS IN GIVEN ORGANS AND PARTS. %5¤ 0185

CHOOSE THE CORRECT ANSWER. 1

THE ESOPHAGUS IS THE 1218
A. WINDPIPE.
*B. FOOD PIPE.
C. CELL MEMBRANE.
D. SALIVA.

IN THE STOMACH FOOD IS 1219
*A. PARTLY DIGESTED.
B. STORED FOR LATER USE.
C. COMPLETELY DIGESTED.
D. SENT TO ALL PARTS OF THE BODY.

IN THE SMALL INTESTINE FOOD IS 1220
*A. COMPLETELY DIGESTED.
B. PARTLY DIGESTED.
C. STORED FOR LATER USE.
D. MOISTENED FOR EASIER MOVEMENT.

THE LARGE INTESTINE STORES 1221

A. PARTLY DIGESTED FOOD.
B. STORED FOR LATER USE.
C. JUICES TO AIDE IN DIGESTION.
*D. FOOD YOU CANNOT DIGEST.

JUICES WHICH HELP BREAK DOWN FOOD ENTER INTO THE 1222
A. LIVER AND STOMACH.
B. SMALL INTESTINE AND LARGE INTESTINE.
*C. STOMACH AND SMALL INTESTINE.
D. PANCREAS AND LIVER.

****

THE STUDENT CAN DEMONSTRATE KNOWLEDGE OF THE DIGESTIVE SYSTEM 0206
BY IDENTIFYING CHANGES WHICH OCCUR IN THE PROCESS OF DIGESTION.
%4□

CHOOSE THE CORRECT ANSWER. 1

TO BE ASSIMILATED INTO THE BLOOD STREAM FOOD MUST 1324
A. BE BROKEN INTO SMALLER PIECES.
*B. BE BROKEN DOWN CHEMICALLY.
C. BE MIXED WITH WATER.
D. ENTER THE LARGE INTESTINE.

WHAT ROLE DOES THE SALIVARY ENZYME PLAY IN THE DIGESTIVE 1325
PROCESSO
A. CHANGES SUGAR TO STARCH
B. CHANGES PROTEIN TO FATS
*C. CHANGES STARCH TO SUGAR
D. CHANGES PROTEIN TO AMINO ACIDS

GASTRIC JUICES OF THE STOMACH BEGIN THE CHANGE OF 1326
*A. PROTEINS TO AMINO ACIDS.
B. FATS TO FATTY ACIDS.
C. STARCH TO SUGAR.
D. CARBONHYDRATES TO PROTEINS.

THE LIVER PRODUCES BILE WHICH START THE DIGESTION OF 1327
A. PROTEINS TO AMINO ACIDS.
B. STARCH TO SUGAR.
C. SUGAR TO STARCH.
*D. FAT TO FATTY ACIDS.

****

THE STUDENT CAN DEMONSTRATE KNOWLEDGE OF THE DIGESTIVE SYSTEM BY 0207
DIFFERENTIATING THE VARIOUS FUNCTIONS PERFORMED BY STRUCTURES
WITHIN THE DIGESTIVE SYSTEM. %10□

DIRECTIONS - GIVEN A LIST OF PARTS OF THE DIGESTIVE SYSTEM, 0057
IDENTIFY WHETHER THE PART SERVES A MECHANICAL, A CHEMICAL FUNCTION, IS A GLAND, OR ACTS TO ABSORB FOOD INTO THE BLOOD STREAM.
PLACE THE APPROPRIATE LETTER OPPOSITE THE PART LISTED.

M. MECHANICAL
C. CHEMICAL
G. GLAND
A. ABSORBER OF FOOD

```
[illegible]
                                                                        [illegible]
LIVER  *G
                                                                        1329
PYTALIN  *C
                                                                        1330
ESOPHAGUS  *M
                                                                        1331
PEPSIN  *C
                                                                        1332
TONGUE  *M
                                                                        1333
VILLI  *A
                                                                        1334
BILE  *C
                                                                        1335
PANCREAS  *G
                                                                        1336
TRYPSIN  *C
                                                                        1337

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THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF HOW THE SHAPES     0018
OF PARTS OF THE DIGESTIVE SYSTEM REGULATES THE FUNCTIONS OF
THE SYSTEM BY SELECTING THE TERM OR PHRASE WHICH BEST COMPLETES
THE STATEMENT.  %3П

CHOOSE THE CORRECT ANSWER.
                                                                        1
FOODS TAKEN INTO THE BODY MUST BE CHANGED TO A SIMPLE FORM          2400070
BECAUSE                                                                  70
  A. THEY ARE TOO LARGE TO MOVE THROUGH THE DIGESTIVE ORGANS.        2400070
 *B. THEY ARE TOO COMPLEX FOR THE CELLS TO USE.                      2400070
  C. SO THAT PHOTOSYNTHESIS CAN TAKE PLACE.                          2400070
  D. SO PERISTALSIS CAN OCCUR IN THE DIGESTIVE ORGANS.               2400070

THE ESOPHAGUS CONVEYS FOOD TO THE STOMACH EASILY DUE TO ITS           0071
SHAPE WHICH IS
  A. CIRCULAR OPENING.                                               2400071
  B. COILED TUBE.                                                    2400071
 *C. STRAIGHT TUBE.                                                  2400071
  D. BAG-LIKE.                                                       2400071
                                                                     2400071
IT WOULD NOT BE POSSIBLE FOR DIGESTION TO OCCUR IF IT WERE NOT       2400072
FOR THE MUSCULAR CONTRACTIONS CALLED                                 2400072
 *A. PERISTALSIS.                                                    2400072
  B. OSMOSIS.                                                        2400072
  C. ABSORPTION.                                                     2400072
  D. REFLEX ACTION.                                                  2400072
                                                                     2400072

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THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE DIGESTIVE       0020
PROCESS BY SELECTING THE CORRECT SEQUENCE OF EVENTS IN DIGESTION.
%1П

CHOOSE THE CORRECT ANSWER.
                                                                        1
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AFTER FOOD HAS BEEN IN THE MOUTH FOR A SHORT TIME, IT IS                  0076
SWALLOWED AND PUSHED INTO THE ESOPHAGUS, FROM THERE IT IS FORCED
 *A. BY PERISTALSIS INTO THE STOMACH.
  B. INTO THE STOMACH AND THEN PUSHED BY PERISTALSIS INTO THE          2400076
     ESOPHAGUS.                                                        2400076
  C. DIRECTLY INTO THE LIVER WITH THE AID OF PERISTALSIS AND           2400076
     THEN INTO THE TRACHEA.                                            2400076
  D. INTO THE BRONCHIAL TUBES AND FROM THERE FORCED INTO THE           2400076
     STOMACH BY PERISTALSIS.                                           2400076

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THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE SENSES OF           0016
SIGHT AND HEARING, BY COMPLETING SENTENCES ON HOW THE PARTS OF
EACH FUNCTION EFFECTIVELY.  %5□

CHOOSE THE CORRECT ANSWER.                                                   1

WHEN NERVE ENDINGS OF THE EYE ARE STIMULATED, MESSAGES OR              2400060
IMPULSES ARE SENT ALONG THE NERVE CELLS TO THE                         2400060
  A. EYE BALL.                                                         2400060
  B. PUPIL.                                                            2400060
 *C. BRAIN.                                                            2400060
  D. EYE LID.                                                          2400060

THE NERVE ENDINGS SENSITIVE TO LIGHT ARE LOCATED AT THE       OF          0061
THE EYE.                                                               2400061
 *A. BACK                                                              2400061
  B. FRONT                                                             2400061
  C. SIDE                                                              2400061
  D. BOTTOM                                                            2400061

WHEN THE BRAIN INTERPRETS IMPULSES FROM THE OPTIC NERVE, YOU ARE          0062
ABLE TO                                                                     62
  A. HEAR.                                                             2400062
 *B. SEE.                                                              2400062
  C. SMELL.                                                            2400062
  D. TASTE.                                                            2400062

A VIBRATING OBJECT PRODUCES                                            2400064
 *A. SOUND.                                                            2400064
  B. SMELL.                                                            2400064
  C. SIGHT.                                                            2400064
  D. TOUCH.                                                            2400064

THE INNER EAR RECEIVES SOUND PRODUCING VIBRATIONS THROUGH THE          2400065
AID OF THE FUNNEL EFFECT OF THE                                             65
  A. AUDITORY NERVE.                                                   2400065
 *B. OUTER EAR.                                                        2400065
  C. OPTIC NERVE.                                                      2400065
  D. EARDRUM.                                                          2400065

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THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE SENSES - 0017
SMELL, TASTE AND TOUCH BY SELECTING THE REACTION OF THESE SENSES
TO A STIMULI. %3¤

CHOOSE THE CORRECT ANSWER. 1

THROUGH THE USE OF THE FIVE DIFFERENT KINDS OF NERVE ENDINGS IN 2400066
YOUR SKIN, YOU DEVELOP THE SENSE OF
*A. FEELING. 2400066
B. SEEING. 2400066
C. HEARING. 2400066
D. SMELLING. 2400066

AFTER YOU COME IN CONTACT WITH AN ODOR FOR SEVERAL MINUTES, THE 2400068
SENSITIVITY OF THE NERVE ENDINGS INSIDE THE NOSE 2400068
A. REMAINS THE SAME. 2400068
B. BECOMES GREATER.
C. INCREASES GREATLY.
*D. BECOMES LESS.

YOU WOULD NOT BE ABLE TO DIFFERENTIATE BETWEEN FOODS IF IT WERE 0069
NOT FOR THE LOCATED ON YOUR TONGUE.
A. RIDGES 2400069
B. PORES 69
*C. TASTE BUDS 2400069
D. PAPILLAE 2400069

****

RESPIRATORY SYSTEM

THE STUDENT WILL RECALL THE ORGANS OF THE RESPIRATORY SYSTEM 0015
AND THEIR FUNCTION BY RECOGNITION OF DEFINITIONS. %7¤

CHOOSE THE CORRECT ANSWER. 1

FILTERING, WARMING, AND MOISTENING OF AIR ARE THE THREE MAIN 2400052
FUNCTIONS OF THE 2400052
A. BRONCHIAL TUBES. 2400052
B. ALVEOLUS.
*C. NASAL PASSAGES. 2400052
D. TRACHEA. 2400052

INHALATION BRINGS FRESH OXYGEN INTO THE BODY, WHILE THE PROCESS 2400053
OF EXHALATION REFERS TO THE REMOVAL OF WASTE, AND 2400053
VAPOR. 2400053
A. CARBON MONOXIDE, SULFUR 2400053
*B. CARBON DIOXIDE, WATER 2400053
C. CALCIUM HYDROXIDE, WATER 2400053
D. SODIUM CLORIDE, WATER 2400053

THE TRACHEA MAY ALSO BE CALLED THE 2400055
*A. WINDPIPE. 2400055
B. BRONCHI. 2400055
C. NASAL PASSAGES. 2400055
D. PHARYNX. 2400055

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THE TRACHEA BRANCHES INTO TWO TUBES CALLED                      2400056
  A. LUNGS.                                                     2400056
 *B. BRONCHI.                                                   2400056
  C. NASAL PASSAGES.                                            2400056
  D. LARYNX.                                                    2400056

CARBON DIOXIDE THAT IS PRODUCED THROUGHOUT YOUR BODY IS CARRIED 2400057
IN THE BLOOD TO YOUR                                            2400057
  A. PHARYNX.                                                   2400057
  B. LARYNX.                                                    2400057
  C. TRACHEA.                                                   2400057
 *D. LUNGS.                                                     2400057

YOUR BODY IS BRINGING IN OXYGEN AND REMOVING CARBON DIOXIDE     2400058
  A. SOME OF THE TIME.                                          2400058
 *B. ALL THE TIME.                                              2400058
  C. ONLY AS YOU SLEEP.                                         2400058
  D. WHILE YOU ARE AWAKE.                                       2400058

AS YOU BREATHE OXYGEN INTO YOUR BODY, YOUR RIBS MOVE            240059
 *A. UPWARD AND OUTWARD.                                        2400059
  B. DOWN AND OUT.                                              2400059
  C. UPWARD AND INWARD.                                         2400059
  D. OUTWARD AND INWARD.

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                          CIRCULATORY SYSTEM

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF BLOOD            0186
BY SELECTING THE CORRECT RESPONSE IN A GIVEN SITUATION.  %10¤

READ THE PARAGRAPHS BELOW.  BASED ON WHAT YOU KNOW ABOUT BLOOD     0052
CHOOSE *A* FOR REASONABLE, OR *B* FOR UNREASONABLE.

JACK DOES NOT FEEL WELL SO HE GOES TO THE DOCTOR.  THE DOCTOR
TAKES A SAMPLE OF JACK.S BLOOD.  THE DOCTOR FINDS THAT THERE IS
A LARGE AMOUNT OF WHITE BLOOD CELLS IN JACK.S BLOOD.

JACK IS NOT SICK.  *B                                              1223

JACK NEEDS MORE PLASMA.  *B                                        1224

JACK HAS AN INFECTION.  *A                                         1225

JACK NEEDS MORE WHITE BLOOD CELLS.  *B                             1226

JACK DOES NOT HAVE RED BLOOD CELLS.  *B                            1227

PLASMA CAN BE EASILY MOVED FROM ONE PLACE TO ANOTHER.  *A          1228

BEFORE IT IS USED, WATER MUST BE ADDED TO PLASMA.  *A              1229

PLASMA CAN SAVE PEOPLES LIVES.  *A                                 1230

PLASMA MUST BE USED QUICKLY OR IT WILL SPOIL.  *B                  1231
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DRIED PLASMA CONTAINS RED AND WHITE BLOOD CELLS. *B 1252

* * *

THE STUDENT WILL SHOW HIS UNDERSTANDING OF THE BLOOD BY SELECTING THE PROPER RESPONSE TO GIVEN STATEMENTS ABOUT ITS COMPOSITION AND CHARACTERISTICS. %7¤ 0190

CHOOSE THE CORRECT ANSWER. 1

BLOOD CARRIES TO ALL PARTS OF THE BODY 1263
*A. FOOD AND OXYGEN
B. FOOD AND CARBON DIOXIDE
C. OXYGEN AND CARBON DIOXIDE
D. CARBON DIOXIDE AND PLASMA

SOME BLOOD CELLS ARE MADE IN THE 1264
A. PLASMA
B. BLOOD VESSELS
C. HEMOGLOBIN
*D. MARROW

THE RED COLOR OF BLOOD COMES FROM THE 1265
A. PLASMA
B. BLOOD VESSELS
*C. HEMOGLOBIN
D. MARROW

RED BLOOD CELLS WEAR OUT AT THE RATE OF 1266
A. 30 MILLION PER MINUTE
B. 7 THOUSAND PER SECOND
*C. 3 MILLION PER SECOND
D. 5 MILLION PER MINUTE

ONE KIND OF WHITE BLOOD CELL IS A 1267
A. DRIFTER
*B. GERM EATER
C. PLASMA GROWER
D. MARROW EATER

PUS IS MADE UP OF 1268
A. DEAD RED BLOOD CELLS AND PLASMA
B. DEAD GERMS AND RED BLOOD CELLS
C. DEAD PLASMA AND WHITE BLOOD CELLS
*D. DEAD WHITE BLOOD CELLS AND GERMS

PLASMA IS THE 1269
A. WHITE COLOR OF WHITE BLOOD CELLS
B. DIGESTED FOOD IN THE BLOOD
*C. LIQUID PART OF THE BLOOD
D. IRON IN YOUR BLOOD.

* * *

THE STUDENT CAN DEMONSTRATE UNDERSTANDING OF THE CIRCULATORY SYSTEM BY IDENTIFYING THE FUNCTION OF VARIOUS PARTS OF THE SYSTEM. %10¤ 0205

DIRECTIONS - GIVEN A LIST OF PARTS OF THE CIRCULATORY SYSTEM 0056

IDENTIFY WHETHER THE PART IS CONCERNED WITH THE DISTRIBUTION OF OXYGENATED BLOOD OR WITH BLOOD CARRYING IMPURITIES, WHETHER IT ASSISTS IN CLEANING THE BLOOD OR SERVES AS A CONNECTIVE NETWORK. PLACE THE LETTER OF THE APPROPRIATE RESPONSE NEXT TO THE PART LISTED.

A. OXYGENATED BLOOD
B. UNPURE BLOOD
C. CLEANS THE BLOOD
D. CONNECTIVE NETWORK

CAPILLARIES *D 1314

LEFT VENTRICLE *A 1315

RIGHT AURICLE *B 1316

KIDNEY *C 1317

VEINS *B 1318

LEFT AURICLE *A 1319

LUNGS *C 1320

RIGHT VENTRICLE *B 1321

ARTERIES *A 1322

HEMOGLOBIN *A 1323

****

NERVOUS SYSTEM

THE STUDENT CAN APPLY KNOWLEDGE OF THE ACTION OF A STIMLUS ON THE SENSORY, CONNECTING, OR MOTOR NEURONS BY IDENTIFYING THE FUNCTION OF EACH IN A UNIQUE SITUATION. %3¤ 0194

THE ACTION OF A STIMULUS ON A CONNECTING NEURON IS *MOST* LIKE 1277
A. A RECEIVER ACCEPTING THE INITIAL STIMULUS.
B. A TRANSMITTER SENDING OUT THE INITIAL STIMULUS.
*C. A SWITCHBOARD DIRECTING THE STIMULUS TO A MUSCLE OR GLAND.
D. AN AMPLIFIER WHICH STRENGTHENS THE ORIGINAL STIMULUS.

DAMAGE TO THE SPINAL CORD MAY RESULT IN PARALYSIS BECAUSE 1278
A. THE SENSORY NEURONS ARE DAMAGED AND CAN NO LONGER RECEIVE A STIMULUS.
*B. THE CONNECTING NEURONS ARE DAMAGED AND CANNOT DIRECT A STIMULUS FURTHER.
C. THE MOTOR NEURONS ARE DAMAGED, AND WILL NOT PERMIT THE MUSCLES TO FUNCTION.
D. ALL REFLEX ACTIONS OF THE BODY CEASE TO FUNCTION.

A CHEMICAL SUBSTANCE IS SECRETED INTO THE BODY BY GLANDS, THE ADRENALS. THE ADRENAL GLANDS INCREASE THEIR ACTION WHEN 1280
A. WE ARE NERVOUS.

B. WE ARE STIMULATED.
C. THE MOTOR NEURON CARRIES AN IMPULSE TO THE GLANDS.
D. THE SENSORY NEURON CEASES TO FUNCTION.

****

THE STUDENT WHEN PRESENTED WITH AN EXAMPLE, WILL BE ABLE TO 0274
IDENTIFY WHICH TYPE OF LEARNING IS INVOLVED BY CLASSIFYING
SITUATIONS AS INSTINCT, REFLEX, CONDITIONED RESPONSE, OR GOAL
INSIGHT. %7□

A YOUNG CAT WAS PLAYING WITH A BALL OF YARN IN THE YARD WHEN 0085
A SQUIRREL RAN UP A TREE. THE CAT RAN AFTER THE SQUIRREL. THE
CAT,S OWNER CALLED HIM, TOLD HIM TO COME DOWN AND HE DID.

THE CAT CLIMBING UP THE TREE IS AN EXAMPLE OF WHICH KIND OF 2400566
LEARNINGO 2400566
A. CONDITIONED RESPONSE 2400566
B. GOAL-INSIGHT 2400566
*C. INSTINCT 2400566
D. REFLEX 2400566

THE CAT COMING BACK DOWN IS AN EXAMPLE OF 2400567
A. INSTINCT. 2400567
*B. CONDITIONED RESPONSE. 2400567
C. REFLEX. 2400567
D. GOAL - INSIGHT. 2400567

A FIRST GRADER WAS WATCHING HIS BROTHER PLAYING BALL. HIS 0086
BROTHER HIT A HOME RUN AND WAS GIVEN A TROPHY. THE LITTLE BOY 2400568
DECIDED HE WANTED TO BE A BASEBALL PLAYER TOO.

THE OLDER BROTHERS HITTING THE BALL IS AN EXAMPLE OF 0568
A. INSTINCT. 2400568
*B. CONDITIONED RESPONSE. 2400568
C. GOAL - INSIGHT. 568
D. REFLEX. 2400568

THE LITTLE BOY DECIDING TO BECOME A BALL PLAYER IS AN EXAMPLE 2400569
OF 2400569
*A. GOAL - INSIGHT. 2400569
B. REFLEX. 2400569
D. INSTINCT. 2400569
E. CONDITIONED RESPONSE. 2400569

SUE HAS AN AQUARIUM IN HER ROOM WITH THREE GOLDFISH IN IT. SHE 0087
WANTED TO TRAIN THE FISH TO COME TO THE TOP BUT COULDNT. ONE DAY 2400570
SHE TAPPED THE TANK WHILE FEEDING THE FISH AND THEY CAME TO EAT.
AFTER THAT, SHE ALWAYS TAPPED THE TANK WHEN SHE FED THEM.

READ THE PARAGRAPH BELOW AND CHOOSE THE MAIN IDEA FROM THE 0091
ALTERNATIVES GIVEN.

THE FISH COMING TO EAT WHEN SUE TAPPED THE GLASS IS AN EXAMPLE OF 0570
A. GOAL - INSIGHT. 2400570
B. REFLEX. 2400570
C. INSTINCT. 2400570
*D. CONDITIONED RESPONSE. 2400570

SUE *DECIDING* TO TAP THE GLASS WHEN SHE FED THE FISH IS 2400571

```
  A. REFLEX.                                                          2400571
  B. INSTINCT.                                                        2400571
  C. CONDITIONED RESPONSE.                                            2400571
 *D. GOAL - INSIGHT.                                                  2400571

SUE SHAKING HER HAND AFTER ACCIDENTALLY HITTING THE TANK THE             0572
FIRST TIME IS AN EXAMPLE OF
  A. INSTINCT.                                                        2400572
 *B. REFLEX.                                                          2400572
  C. CONDITIONED RESPONSE.                                            2400572
  D. GOAL - INSIGHT.                                                  2400572

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                              SKELETAL SYSTEM


THE STUDENT WILL COMPREHEND THE NEED FOR RIBS BY STUDYING THE            0008
LOCATION OF THE HEART AND LUNGS IN A DIAGRAM OF BASIC BODY ORGANS
AND SELECTING THE POSSIBLE FUNCTIONS OF THE RIBS.  %2□

CHOOSE THE CORRECT ANSWER.                                                  1

THE RIBS AND BREASTBONE FORM A CAGE AROUND THE                        2400026
 *A. HEART AND LUNGS.                                                 2400026
  B. HEART AND LOWER INTESTINE.                                       2400026
  C. LUNGS AND BRAIN.                                                 2400026
  D. LUNGS AND STOMACH.                                               2400026

THE BACKBONE AND BREASTBONE ARE CONNECTED THROUGH       PAIRS OF         0027
RIBS.                                                                 2400027
  A. 8                                                                2400027
 *B. 10                                                               2400027
  C. 12                                                               2400027
  D. 14                                                               2400027

***************************************************************************

THE STUDENT WILL ANALYZE HOW CLOSELY THE ARM, HAND AND SHOULDER          0009
WORK TOGETHER BY SELECTING THE MOST PROBABLE OUTCOME OF HYPOTHE-
TICAL VARIETIES IN A BONE.  %1□

CHOOSE THE CORRECT ANSWER.                                                  1

IF YOUR ARM JUST BELOW THE ELBOW IS BROKEN, A CAST WILL BE            2400028
PLACED ON THE BODY                                                    2400028
  A. ABOVE THE ELBOW ONLY.                                            2400028
  B. ON THE WRIST ONLY.                                               2400028
 *C. ABOVE THE ELBOW TO THE WRIST.                                    2400028
  D. ON THE SHOULDER BLADE.                                           2400028

***************************************************************************

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE PROTECTIVE          0006
FEATURES OF THE SKULL BY SELECTING THE FEATURES THAT WOULD PRO-
TECT AGAINST INJURY IN A GIVEN SITUATION.  %2□
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CHOOSE THE CORRECT ANSWER. 1

THE SKULL PROVIDES A DEFINITE SHAPE TO THE 2400019
A. FOOT. 2400019
*B. HEAD. 2400019
C. HAND. 2400019
D. CHEST. 2400019

SHOULD THE PERSON BE HIT ON THE EAR OR NOSE HIS SKULL WOULD BE 2400020
PROTECTED BY A FLEXIBLE SUBSTANCE CALLED 2400020
*A. CARTILAGE. 2400020
B. CARPALS. 2400020
C. BONE. 2400020
D. VERTEBRA. 2400020

****

THE STUDENT WILL APPLY HIS UNDERSTANDING OF THE FUNCTION OF THE 0010
ENTIRE SKELETAL SYSTEM BY SELECTING THE PROBABLE FUNCTIONS
RELATED TO THE BONES OF THE HIP, LEG, AND FOOT. %3□

CHOOSE THE CORRECT ANSWER. 1

THE ENTIRE SKELETON PROVIDES OVER-ALL SUPPORT OF THE BODY WHILE 2400031
THE BOWL-LIKE SHAPE OF THE HIP BONES SERVES AS A SUPPORT FOR 2400031
THE 2400031
A. ORGANS IN THE CHEST CAVITY. 2400031
B. RESPIRATORY ORGANS. 2400031
*C. ABDOMINAL ORGANS. 2400031
D. CIRCULATORY ORGANS. 2400031

THE GENERAL SHAPE OF YOUR BODY IS PRODUCED BY THE SKELETON, 2400032
WHILE THE WIDTH OF YOUR HIPS IS PRODUCED BY THE WIDTH OF WHICH 2400032
BONESO 2400032
A. COLLAR 2400032
B. RIBS 2400032
C. FOOT 2400032
*D. HIP 2400032

WHILE THE HANDS AND ARMS MAY SWING FREELY FOR A PERSON STANDING 2400033
UPRIGHT, THE NUMEROUS BONES FOUND IN THE FEET *AND TOES* MUST 2400033
BE PLACED ON THE GROUND COMPLETELY WHILE WALKING IN ORDER TO 2400033
MAINTAIN . 2400033
*A. BALANCE 2400033
B. DIRECTION
C. FLEXIBILITY
D. SPEED

****

AS A RESULT OF EXPERIMENTING WITH AND EXAMINING BONES, THE 0011
STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE CHARACTERISTICS
OF BONE TISSUE AND STRUCTURE BY SELECTING CORRECT OUTCOMES FROM
EXPERIMENTAL SITUATIONS. %3□

CHOOSE THE CORRECT ANSWER. 1

IN ITS NATURAL STATE, A BONE WHEN BENT WILL . 2400034

```
 *A. BREAK INTO 2 OR 3 PIECES                                          2400034
  B. CURVE TO A U SHAPE                                                2400034
  C. RETURN TO ITS ORIGINAL SHAPE.                                     2400034
  D. REMAIN BENT.

AFTER PLACING A BONE IN THE DILUTED HYDROCHLORIC ACID, IT              2400035
NO LONGER CONTAINS THE HARD SUBSTANCE CALLED      .                    2400035
  A. LEAD                                                              2400035
  B. IRON                                                              2400035
 *C. CALCIUM                                                           2400035
  D. COPPER                                                            2400035

WHEN A BONE IS BROKEN THE HARD OUTSIDE LAYER BREAKS VERY EASILY           0036
WHILE THE INSIDE HAS
 *A. A SOFTER MATERIAL THAT REQUIRES A GREAT DEAL OF PRESSURE TO
     BREAK.
  B. A HARD MATERIAL THAT REQUIRES A LIGHT TAP TO BREAK.
  C. A HARD MATERIAL THAT REQUIRES A GREAT DEAL OF PRESSURE TO
     BREAK.
  D. A SOFT MATERIAL THAT WILL BEND RATHER THAN BREAK INTO
     SEVERAL PIECES.

**************************************************************************

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE KINDS OF             0012
BONE FRACTURES AND THEIR TREATMENT BY CHOOSING FROM A LIST THE
TREATMENT OR TYPE OF INJURY.  %3¤

CHOOSE THE CORRECT ANSWER.                                                   1

A FRACTURED LIMB CAN BE IMMOBILIZED THROUGH THE USE OF                 2400037
  A. STILTS.                                                           2400037
 *B. SPLINTS.                                                          2400037
  C. A TOURNIQUET.                                                     2400037
  D. ANTISEPTIC.                                                       2400037

A FRACTURED BONE MAY BE DETECTED WHEN A DOCTOR TAKES                   2400038
 *A. AN X-RAY.                                                         2400038
  B. A PICTURE.                                                        2400038
  C. A SLIDE.                                                          2400038
  D. A SPECIMEN.                                                       2400038

FRACTURE TYPES MAY EITHER BE                                           2400039
  A. SIMPLE OR COMBINATION.                                            2400039
  B. COMPOUND OR COMPLEX.                                              2400039
  C. COMPLEX OR SIMPLE.                                                2400039
 *D. SIMPLE OR COMPOUND.                                               2400039

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THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF BONES BY SELECTING          0189
THE CORRECT FUNCTION FOR GIVEN BONES.  %8¤

CHOOSE THE CORRECT ANSWER.                                                   1

ONE FUNCTION OF BONES IS TO                                               1255
  A. GROW SKIN.
  B. CARRY FOOD TO ALL PARTS OF THE BODY.
 *C. PROTECT DELICATE ORGANS IN THE BODY.
```

D. PROTECT YOUR SKULL.

THE VERTEBRAE OR SPINAL COLUMN IS MADE TO PROTECT THE 1256
*A. NERVES.
B. PELVIS.
C. POINTS.
D. HINGE.

BONES ARE CONNECTED SO THAT THEY CAN BEND AND MOVE AT 1257
A. NERVES.
B. PELVIS.
*C. JOINTS.
D. HINGE.

BONES MANUFACTURE %MAKE¤ 1258
*A. BLOOD CELLS.
B. NERVE CELLS.
C. BRAIN CELLS.
D. MUSCLE CELLS.

THE TYPE OF JOINT AT THE KNEE IS 1259
A. BALL-AND-SOCKET.
*B. HINGE.
C. PIVOT.
D. SLIDING.

THE TYPE OF JOINT AT THE SHOULDER IS 1260
A. SLIDING.
B. PIVOT.
C. HINGE.
*D. BALL-AND-SOCKET.

THE BONES ARE NECESSARY TO 1261
A. CARRY FOOD TO CELLS.
B. BREATHE OXYGEN.
C. CARRY OXYGEN TO CELLS.
*D. SUPPORT YOUR BODY.

THE HEART AND LUNGS ARE PROTECTED BY THE 1262
A. SKULL.
*B. RIBS.
C. PELVIS.
D. VERTEBRAE.

****

REPRODUCTION

THE STUDENT CAN SHOW HIS KNOWLEDGE OF REPRODUCTION IN PLANTS TO REPRODUCTION IN MAMMALS BY IDENTIFYING THE FUNCTION OF PLANT AND ANIMAL REPRODUCTIVE STRUCTURES OR CELLS. %2¤ 0191

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THE FOLLOWING SERVES THE SAME FUNCTION IN PLANT AND ANIMAL REPRODUCTIONO 1270
A. PISTIL
*B. SPERM CELL

C. POLLEN
D. STAMEN

THE FUNCTION OF THE EGG CELL IN REPRODUCTION OF PLANTS OR ANIMALS IS TO 1271
A. PRODUCE A HEALTHY PLANT OR ANIMAL.
B. SUPPLY FOOD TO THE EMBRYO.
C. PRODUCE A SEED IN THE OVARY.
*D. SUPPLY HALF OF THE CHARACTERISTICS FOR THE OFFSPRING.

* * *

HEALTH

THE STUDENT WILL ANALYZE THE KINDS OF IMMUNITIES TO DISEASES BY SELECTING WHETHER THEY ARE ACTIVE IMMUNITIES, PASSIVE IMMUNITIES, OR CAN,T BE DETERMINED. %4□ 0117

CHOOSE THE CORRECT ANSWER.

1

LONGTIME IMMUNITY FROM SMALLPOX RESULTS FROM HAVING HAD THE DISEASE. THIS IMMUNITY IS 0451
*A. ACTIVE
B. PASSIVE
C. CAN NOT BE DETERMINED

LONGTIME IMMUNITY FROM YELLOW FEVER RESULTS FROM HAVING HAD THE DISEASE. THIS IMMUNITY IS 0452
*A. ACTIVE
B. PASSIVE
C. CAN NOT BE DETERMINED

IMMUNITY FROM GERMAN MEASLES RESULTS FROM GAMMA GLOBULIN WHICH IS A PROTEIN IN BLOOD PLASMA. THIS IMMUNITY IS 0453
A. ACTIVE
*B. PASSIVE
C. CAN NOT BE DETERMINED

SHORT TIME IMMUNITY FROM DIPHTHERIA RESULTS FROM ANTIBODIES PASSED FROM MOTHER TO NEWBORN. THIS IMMUNITY IS 0454
A. ACTIVE
*B. PASSIVE
C. CAN NOT BE DETERMINED

* * *

THE STUDENT CAN APPLY HIS KNOWLEDGE OF MICROORGANISMS BY CHOOSING REASONS WHY MAN CAN SURVIVE IN A WORLD OF MICROORGANISMS. %2□ 0118

CHOOSE THE CORRECT ANSWER.

1

SINCE BACTERIA HAVE A FAST RATE OF MULTIPLICATION, THE REASON THEY DONT TAKE OVER THE WORLD IS 0455
A. THE PEOPLE KILL THEM AS QUICKLY AS THEY MULTIPLY. 2400454
*B. THE CONDITIONS FOR GROWTH AREN,T ALWAYS IDEAL. 2400454

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  C. BACTERIA ESCAPE THROUGH THE ATMOSPHERE.                            2400454

CHOOSE THE INCORRECT RESPONSE.

WHEN A MICROORGANISM IS FOUND TO BE RESPONSIBLE FOR A DISEASE,             0456
ONE WAY TO PREVENT SPREAD OF THE DISEASE ON A LARGE SCALE IS TO
 *A. LET THE DISEASE RUN ITS COURSE AND HOPE FOR THE BEST.              2400455
  B. TRY TO DEVELOP A VACCINE TO PREVENT THE SPREAD OF THE              2400455
     DISEASE.                                                           2400455
  C. ISOLATE THOSE WITH THE DISEASE SO THEY CANT CONTAMINATE           2400455
     EVERYONE.                                                          2400455

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THE STUDENT WILL APPLY THE PRINCIPLES INVOLVED IN THE BODY,S               0275
FIGHT AGAINST INFECTION BY IDENTIFYING CAUSATIVE RELATIONSHIPS IN
A HYPOTHETICAL SITUATION.  %5□

SEVERAL BOYS WERE PLAYING BASEBALL IN THE SCHOOL PLAYGROUND.               0088
WHILE ONE BOY WAS RUNNING, HE FELL AND SCRATCHED HIMSELF
BADLY.  HE GOT UP AND HURRIED TO SECOND BASE, BRUSHED HIMSELF           2400585
OFF, AND CONTINUED WITH THE GAME.  TWO DAYS LATER HIS LEG BECAME        2400585
INFECTED.                                                               2400585

WHAT IS THE FIRST THING HE SHOULD HAVE DONE TO PREVENT THISO            2400585
  A. CALL A DOCTOR
 *B. WASH THE WOUND
  C. POUR ON IODINE
  D. SPIT ON IT TO CLEAN IT                                             2400585

WHAT IS THE REAL CAUSE FOR THE INFECTION,                               2400586
 *A. BACTERIA                                                           2400586
  B. DIET                                                               2400586
  C. PLAYING BALL                                                       2400586

THE TWO DAY LAPSE PERIOD BEFORE THE INFECTION APPEARED PROBABLY IS         0587
DUE TO
  A. WEAK BACTERIA                                                      2400587
 *B. BACTERIA GROWTH                                                    2400587
  C. WHITE BLOOD CELLS                                                  2400587
  D. POOR CIRCULATION                                                   2400587

THE  INFECTION  IS MADE OF                                              2400589
 *A. BACTERIA.                                                          2400589
  B. WHITE BLOOD CELLS.                                                 2400589
  C. BOTH A AND B.                                                      2400589
  D. NEITHER A NOR B.                                                   2400589

WOULD YOU HAVE BEEN SURPRISED THAT THE BOY GOT THE INFECTIONO WHY       2400590
  A. YES                                                                2400590
  B. NO                                                                 2400590
  C. MAYBE                                                              2400590

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THE STUDENT WILL DISTINGUISH BETWEEN ANTIBODIES AND ANTISEPTICS,           0276
AND ANTIBIOTICS BY MATCHING THE WORD WITH ITS CORRECT DEFINITION.
%3□
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CHOOSE THE CORRECT ANSWER.                                          1

GERM KILLERS PRODUCED INSIDE THE BODY ARE CALLED              2400591
  A. ANTISEPTICS.                                             2400591
  B. ANTIBIOTICS.                                             2400591
 *C. ANTIBODIES.                                              2400591

GERM KILLERS PRODUCED BY LIVING MATERIALS OUTSIDE THE BODY ARE  2400592
  A. ANTISEPTICS.                                             2400592
 *B. ANTIBIOTICS.                                             2400592
  C. ANTIBODIES.                                              2400592

GERM KILLERS MADE FROM NON-LIVING CHEMICALS ARE               2400593
 *A. ANTISEPTICS.                                             2400593
  B. ANTIBODIES.                                              2400593
  C. ANTIBIOTICS.                                             2400593


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THE STUDENT WILL APPLY HIS KNOWLEDGE OF THE BODY,S DEFENSE       0277
AGAINST INFECTION BY IDENTIFYING WAYS THAT BACTERIA ARE DESTROYED
BY THE BODY.  %3□

CHOOSE THE CORRECT ANSWER.                                          1



BACTERIA ARE IN THE AIR ALL AROUND YOU.  THEY LAND ON YOUR SKIN,  2400594
AND ARE TAKEN IN WHEN YOU EAT AND WHEN YOU BREATHE.           2400594
THE PRIMARY REASON THAT YOUR LUNGS ARE NOT FILLED WITH DEADLY
BACTERIA IS DUE TO
  A. WHITE BLOOD CELLS                                        2400594
 *B. MUCUS CELLS                                              2400594
  C. ANTIBODIES
  D. DIGESTIVE JUICES

AS YOU EAT, BACTERIA FROM THE AIR, YOUR SKIN, AND YOUR MOUTH  2400595
INFECT YOUR FOOD.  THE PRIMARY REASON THAT FOOD DOES NOT PUT
MORE BACTERIA IN THE BODY IS DUE TO THE WORK OF
  A. MUCUS CELLS                                              2400595
  B. WHITE BLOOD CELLS                                        2400595
 *C. DIGESTIVE JUICES                                         2400595
  D. ANTIBODIES                                               2400595

WHENEVER YOU CUT OR SCRATCH YOURSELF, BACTERIA GET INTO YOUR  2400596
BODY.  THE PRIMARY REASON THAT CUTS OR SCRATCHES DO NOT CAUSE
MORE INFECTION IS DUE TO THE WORK OF
  A. ANTIBIOTICS                                              2400596
  B. MUCUS CELLS
 *C. WHITE BLOOD CELLS                                        2400596
  D. DIGESTIVE JUICES


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THE STUDENT WILL DESTINGUISH BETWEEN VERTEBRATES AND INVERTEBRATES 0038
BY CORRECTLY CLASSIFYING A GIVEN LIST OF CHARACTERISTICS. %4□

CHOOSE THE CORRECT ANSWER. 1

ALL VERTEBRATES HAVE 2400169
*A. BACKBONES. 2400169
B. ANTENNAE 2400169
C. HAIR. 2400169
D. LUNGS. 2400169

ALL ANIMALS WITH BACKBONES ARE 2400170
A. INVERTEBRATES. 2400170
*B. VERTEBRATES. 2400170
C. PEOPLE. 2400170
D. SKINNY. 2400170

EMPTY SPOOLS ARE STRUNG ON A PIECE OF ROPE TO MAKE A MODEL OF A 2400171
BACKBONE. THE SPOOLS STAND FOR 2400171
A. THE BRAIN. 2400171
B. NERVES. 2400171
*C. VERTEBRAE. 2400171
D. RIBS. 2400171

EMPTY SPOOLS ARE STRUNG ON A PIECE OF ROPE TO MAKE A MODEL OF A 0172
BACKBONE. THE ROPE STANDS FOR
A. THE BRAIN. 2400172
*B. THE NERVE CORD. 2400172
C. BONES. 2400172
D. THE NERVOUS SYSTEM. 2400172

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THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE CLASSIFICA- 0039
TION OF ANIMALS AS VERTEBRATES OR INVERTEBRATES BY PUTTING
ANIMALS INTO THEIR PROPER CLASS. %5□

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THESE IS AN INVERTEBRATEO 2400173
A. TURTLE 2400173
B. SNAKE 2400173
*C. CATERPILLAR 2400173
D. LIZARD 2400173

ALL OF THE FOLLOWING ARE VERTEBRATES *EXCEPT* THE 2400174
A. DINOSAUR. 2400174
B. MOUSE. 2400174
*C. BEETLE. 2400174
D. MAN 2400174

ALL OF THE FOLLOWING ARE INVERTEBRATES *EXCEPT* THE 2400176
A. STARFISH. 2400176
*B. SEA GULL. 2400176
C. TAPE WORM. 2400176
D. SAND DOLLAR. 2400176

ALL OF THE FOLLOWING PAIRS OF ANIMALS BELONG TOGETHER *EXCEPT* 2400177
A. RABBIT AND MOUSE. 2400177
*B. TURTLE AND CLAM. 2400177

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  C. GRASS SNAKE AND LIZARD.                                       2400177
  D. ROBIN AND OWL.                                                2400177

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THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF THE FIVE CLASSES OF       0040
VERTEBRATES BY SELECTING THE CHARACTERISTICS FOR EACH CLASS.  %5¤

CHOOSE THE CORRECT ANSWER.                                               1

ANIMALS THAT LIVE PART OF THEIR LIVES IN WATER AND THE REST OF     2400178
THEIR LIVES ON LAND ARE                                            2400178
  A. BIRDS.                                                        2400178
  B. FISH.                                                         2400178
  C. REPTILES.                                                     2400178
 *D. AMPHIBIANS.                                                   2400178
  E. MAMMALS.                                                      2400178

ITS BODY IS COVERED WITH SCALES OR PLATES.  IT LAYS ITS EGGS       2400179
ON LAND.  THE EGGS HAVE SOFT SHELLS.  IT LIVES ON LAND.  IT HAS    2400179
LUNGS.  IT IS                                                      2400179
  A. A BIRD.                                                       2400179
  B. A FISH.                                                       2400179
 *C. A REPTILE.                                                    2400179
  D. AN AMPHIBIAN.                                                 2400179
  E. A MAMMAL.                                                     2400179

A       IS THE ONLY KIND OF ANIMAL THAT HAS HAIR.                  2400180
  A. BIRD                                                          2400180
  B. FISH                                                          2400180
  C. REPTILE                                                       2400180
  D. AMPHIBIAN                                                     2400180
 *E. MAMMAL                                                        2400180

WHICH OF THE FOLLOWING IS *NOT* TRUE OF ALL BIRDSO  ALL BIRDS      2400181
 *A. CAN FLY.                                                      2400181
  B. HAVE FEATHERS.                                                2400181
  C. HAVE ONE PAIR OF LEGS.                                        2400181
  D. HAVE LUNGS.                                                   2400181

WHICH ONE OF THE FOLLOWING IS *NOT* A CHARACTERISTIC OF MAMMALSO   2400182
 *A. THEY LAY EGGS                                                 2400182
  B. THEY HAVE HAIR                                                2400182
  C. THEY HAVE A BACKBONE                                          2400182
  D. CAN NURSE THEIR YOUNG

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THE STUDENT CAN APPLY THE CONCEPT THAT LIVING THINGS ARE INTERDE-     0064
PENDENT WITH THEIR ENVIRONMENT BY SELECTING EXAMPLES WHICH
SHOW THE RELATIONSHIP.  %4¤

CHOOSE THE CORRECT ANSWER.                                               1

AS FAR AS WE KNOW, THE MOON HAS NO ATMOSPHERE, SURFACE WATER OR       0273
PLANTS.  THE BEST REASON WHY MAN CANNOT LIVE ON THE MOON AS IT     2400272
IS, IS THAT                                                        2400272
 *A. ALL LIVING THINGS DEPEND UPON THEIR ENVIRONMENT.              2400272
  B. ALL LIVING THINGS HAVE LIFE ACTIVITIES, THAT IS, THEY MOVE,   2400272
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GROW, AND SO ON. 2400272
C. MAN EATS BOTH PLANTS AND ANIMALS. 2400272
D. LIVING THINGS INHERIT CERTAIN CHARACTERISTICS. 2400272

IN ORDER TO STAY ALIVE ON THE MOON, SPACE EXPLORERS MUST TAKE 0274
CERTAIN THINGS WITH THEM FROM THE EARTH. WHICH OF THE FOLLOWING 2400273
WOULD THEY *NOT* TAKE0 2400273
A. AIR TO BREATHE 2400273
B. WATER TO DRINK 2400273
*C. SEEDS TO PLANT 2400273
D. FOOD TO EAT 2400273
E. SPECIAL CLOTHES TO PROTECT THEM FROM THE EXTREME HEAT AND 2400273
COLD. 2400273

A PLANT THAT GROWS IN A HOT, MOIST JUNGLE IS MOVED TO A COLD, 0275
DRY PLACE. THE PLANT PROBABLY 2400274
A. GROWS BIGGER. 2400274
B. GROWS MORE LEAVES. 2400274
C. NEEDS MORE AIR. 2400274
*D. DIES. 2400274

ALL OF THE FOLLOWING SHOW THAT LIVING THINGS DEPEND UPON THEIR 0276
ENVIRONMENT *EXCEPT* 2400275
A. DINOSAURS HAVE BECOME EXTINCT. 2400275
B. FISH MUST LIVE IN WATER. 2400275
*C. THE EARTH,S SURFACE HAS CHANGED. 2400275
D. SOME PLANTS ARE NOT GREEN. 2400275

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THE CHILD WILL SHOW AN UNDERSTANDING OF LIVING AND NONLIVING 0065
THINGS BY IDENTIFYING THE ESSENTIAL WAYS IN WHICH LIVING THINGS
DIFFER FROM NONLIVING THINGS. %4n

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THE FOLLOWING IS TRUE ONLY OF LIVING THINGS0 0277
A. CHANGE IN SHAPE 2400276
B. MOVE 2400276
*C. REPRODUCE THEIR OWN KIND 2400276
D. CHANGE IN SIZE 2400276

WHICH OF THESE ITEMS DOES *NOT* COME FROM A LIVING THING0 0278
A. BONES 2400277
B. LEAVES 2400277
C. WOOD 2400277
*D. IRON 2400277
E. FEATHERS 2400277

WHICH OF THE FOLLOWING *CANNOT* REPRODUCE0 0279
*A. SEA SHELLS
B. ROSEBUSHES 2400278
C. ROBINS 2400278
D. SNAILS 2400278

ALL OF THE FOLLOWING ARE CHARACTERISTICS OF LIVING THINGS 0280
EXCEPT 2400279
A. THEY ARE DIFFERENT FROM THINGS THAT ARE NOT ALIVE. 2400279
B. THEY USE AIR, WATER, AND FOOD. 2400279
C. THEY INCLUDE PLANTS AND ANIMALS. 2400279

*D. THEY CAN LIVE IN ANY KIND OF ENVIRONMENT. 2400279

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THE STUDENT CAN RELATE THE FUNCTIONS OF A LIVING CELL TO 0079
THE STRUCTURE OF A STANDARDIZED PICTURE OF A CELL. %10¤

CHOOSE THE CORRECT ANSWER WHICH DESCRIBES THE STRUCTURE OF A 0008
TYPICAL ANIMAL CELL.

THE LIQUID CONTENTS OF AN ANIMAL OR PLANT CELL EXCLUDING THE 0340
NUCLEUS IS 2400339
A. CELL MEMBRANE. 2400339
B. CELL WALL. 2400339
C. PROTOPLASM. 2400339
*D. CYTOPLASM. 2400339

THE THIN, SEALED COVERING OF AN ANIMAL CELL IS 0341
*A. CELL MEMBRANE. 2400340
B. CELL WALL. 2400340
C. PROTOPLASM. 2400340
D. CYTOPLASM. 2400340

THE BUILDING UNIT OF ALL PLANTS AND ANIMALS IS THE 0342
A. CELL MEMBRANE. 2400341
B. CELL WALL. 2400341
C. PROTOPLASM. 2400341
*D. CELL. 2400341

A SMALL, DENSE BODY WHICH CONTROLS THE ACTIVITIES OF A LIVING 0343
CELL IS THE
A. CELL MEMBRANE. 2400342
B. CELL WALL. 2400342
*C. NUCLEUS.
D. CYTOPLASM. 2400342
E. PROTOPLASM. 2400342

THE CONTROLLERS OF CELL DIVISION ARE 344
A. CELL MEMBRANES.
*B. CHROMOSOMES.
C. NUCLEI.
D. VACUOLES.
E. CELL WALLS.

THE LIVING MATERIAL OF A CELL WHICH INCLUDES CELL MEMBRANE, 0345
CYTOPLASM AND NUCLEUS IS 2400344
A. CELL MEMBRANE. 2400344
B. CELL WALL. 2400344
*C. PROTOPLASM. 2400344
D. CYTOPLASM. 2400344

ALL LIVING THINGS, BOTH PLANT AND ANIMAL, ARE MADE OF 0346
A. CELL WALL. 2400345
*B. PROTOPLASM. 2400345
C. CELLULOSE. 2400345

THE MOST ACTIVE PART OF A CELL IN CELL DIVISION IS THE 0347
A. CELL MEMBRANE. 2400346
B. CYTOPLASM. 2400346
C. PROTOPLASM. 2400346

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 *D. NUCLEUS.                                                       2400346

THE STRUCTURE FOUND IN THE PLANT CELL BUT NOT THE ANIMAL CELL          0348
IS THE
 *A. CELL WALL.                                                     2400347
  B. NUCLEUS.                                                       2400347
  C. CELL MEMBRANE.                                                 2400347
  D. PROTOPLASM.                                                    2400347

A GROUP OF CELL TISSUES MAKE UP AN                                      349
  A. SYSTEM.                                                        2400348
 *B. ORGAN.                                                         2400348
  C. ORGANISM.                                                      2400348


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THE STUDENT WILL KNOW THE MEANING OF MICROORGANISM BY SELECTING        0111
ITS CORRECT DIFINITION.  %1□

CHOOSE THE CORRECT ANSWER.                                                1

A MICROORGANISM CAN BE DEFINED AS A LIVING ORGANISM THAT               0428
  A. CAN BE SEEN BY THE NAKED EYE.                                  2400427
 *B. IS ONLY VISIBLE WITH THE USE OF A MICROSCOPE.                  2400427
  C. IS ONLY VISIBLE DURING CERTAIN STAGES OF GROWTH.               2400427
  D. CAN BE SEEN ONLY DURING THE DAYTIME.                           2400427


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THE STUDENT CAN APPLY HIS KNOWLEDGE OF MICROORGANISMS BY               0116
SELECTING THE EFFECTS OF MICRORGANISMS ON THE BODY.  %2□

CHOOSE THE CORRECT ANSWER.                                                1

IF BACTERIA ARE ALLOWED TO GROW WITHOUT CLEANSING A WOUND, IT IS       0449
LIKELY THAT                                                         2400448
  A. THE WOUND WILL HEAL QUICKLY.                                   2400448
 *B. THE WOUND WILL BECOME INFECTED.                                2400448
  C. THE BACTERIA WILL DIE QUICKLY.                                 2400448


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THE STUDENT CAN APPLY HIS KNOWLEDGE ON THE MAINTENANCE OF LIFE         0130
AND HOW IT RELATES TO THE FOOD CYCLE OF FISH, BY SELECTING THOSE
CONDITIONS THAT ARE NECESSARY FOR THE EXISTENCE OF THIS CYCLE.
%3□

CHOOSE THE CORRECT ANSWER.                                                1

ONE CONDITION NECESSARY FOR FISH TO LIVE IS                         2400481
 *A. THEY MUST EAT.                                                 2400481
  B. THEY MUST BE MOBILE.                                           2400481
  C. THEY MUST REPRODUCE.                                           2400481
  D. THEY MUST LIVE IN FRESH WATER.                                 2400481

FISH CAN CARRY ON ALL OF THE FOLLOWING FUNCTIONS *EXCEPT*           2400482
  A. BREATHING
 *B. MANUFACTURING ITS OWN FOOD.
 C. REPRODUCING
 D. SWIMMING

THE REMAINS OF DEAD ANIMALS AND PLANTS FALL TO THE BOTTOM OF THE      2400483
OCEAN.  ANIMALS FEED ON THESE REMAINS AND RELEASE MINERALS.           2400483
WHICH OF THE FOLLOWING EXPLAINS HOW THESE MINERALS ARE PASSED TO      2400483
FISHO                                                                 2400483
 A. THE FISH OBTAIN MINERALS BY SWALLOWING THE OCEAN WATER.           2400483
*B. THE FISH OBTAIN MINERALS BY EATING SEAWEED WHICH HAS FED ON       2400483
    THE REMAINS.                                                      2400483
 C. THE FISH OBTAIN MINERALS BY EATING THE REMAINS OF DEAD            2400483
    ANIMALS.                                                          2400483
 D. NONE OF THE ABOVE.                                                2400483

************************************************************************

THE STUDENT WILL DEMONSTRATE COMPREHENSION OF PLANT AND ANIMAL           0271
CELL CHARACTERISTICS BY IDENTIFYING STRUCTURES THAT PERTAIN TO
EACH TYPE.  %3¤

CHOOSE THE CORRECT ANSWER.                                                  1

THE FOLLOWING STRUCTURES ARE FOUND IN BOTH PLANT AND ANIMAL CELLS     2400545
EXCEPT*                                                               2400545
 A. CHROMOSOMES.                                                      2400545
 B. VACUOLES.                                                         2400545
 C. NUCLEUS.                                                          2400545
*D. CHLOROPHYLL.                                                          545

ANIMAL CELLS *DO NOT* HAVE A                                              546
*A. CELL WALL.                                                        2400546
 B. CELL MEMBRANE.                                                    2400546
 C. NUCLEUS

PLANT CELLS ARE ABLE TO MAKE THEIR OWN FOOD BECAUSE THEY POSSESS      2400547
    CHROMOSOMES.                                                      2400547
 B. CELL WALL.                                                        2400547
*C. CHLOROPHYLL.                                                          547
 D. CYTOPLASM.                                                        2400547

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THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF THE PARTS OF THE CELL          0272
    MATCHING A FUNCTION WITH A CORRESPONDING CELL PART.  %4¤

CHOOSE THE CORRECT ANSWER.                                                  1

EVERY CELL HAS PARTS FOR STORING MATERIAL.  THESE ARE                 2400549
 A. MITOCHONDRIA.                                                     2400549
 B. NUCLEI.                                                           2400549
*C. VACUOLES.                                                         2400549
 D. MEMBRANES.                                                        2400549

THE PART OF PLANT CELLS WHICH GIVES IT SHAPE IS THE                      0550
 A. CELL WALL.                                                        2400550
 B. CYTOPLASM.                                                        2400550
*C. CHROMOSOMES.                                                      2400550
 D. VACUOLES.                                                         2400550
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THE CHROMOSOMES ARE FOUND IN THE                                       2400551
  A. PROTOPLASM.                                                       2400551
 *B. NUCLEUS.                                                          2400551
  C. GENES.                                                            2400551
  D. VACUOLES.                                                         2400551

THE PART OF THE CELL WHICH DETERMINES THE CELLS HEREDITY IS            2400552
  A. CELL WALL.                                                        2400552
  B. PROTOPLASM.                                                       2400552
  C. NUCLEUS.                                                          2400552
 *D. GENE.                                                             2400552

*************************************************************************


                             INSECTS

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF INSECTS BY SELECTING          0044
FACTS PERTINENT TO THEIR PARTS, GROWTH, AND ADAPTABILITY.  %9□

CHOOSE THE CORRECT ANSWER.

WHICH OF THE FOLLOWING IS *NOT* ONE OF THE PARTS OF AN INSECTO         2400198
  A. HEAD                                                              2400198
 *B. FINS                                                              2400198
  C. THORAX                                                            2400198
  D. ABDOMEN                                                           2400198

WHICH OF THESE IS AN INSECTO                                           2400199
  A. SPIDER                                                            2400199
  B. CENTIPEDE                                                         2400199
 *C. CRICKET                                                           2400199
  D. TICK                                                              2400199

WHICH OF THE FOLLOWING IS *NOT* TRUE OF *ALL* INSECTSO                 2400200
ALL INSECTS HAVE                                                       2400200
  A. SIX LEGS.                                                         2400200
  B. THREE BODY PARTS.                                                 2400200
  C. OUTSIDE SKELETONS.                                                2400200
 *D. WINGS.                                                            2400200

THE BUTTERFLY IS AN INSECT THAT GROWS IN FOUR STAGES.  THESE           2400201
STAGES, *IN ORDER*, ARE                                                2400201
 *A. EGGS, LARVAE, PUPAE, ADULTS.                                      2400201
  B. EGGS, NUMPHS, PUPAE, ADULTS.                                      2400201
  C. ADULTS, EGGS, PUPAE, NYMPHS.                                      2400201
  D. EGGS, PUPAE, LARVAE, ADULTS.                                      2400201

THE GRASSHOPPER GROWS IN THREE STAGES.  WHICH OF THE FOLLOWING         2400202
IS *NOT* ONE OF THE STAGESO                                            2400202
  A. NYMPH                                                             2400202
 *B. PUPAE                                                             2400202
  C. ADULT                                                             2400202
  D. EGG                                                               2400202

WHICH OF THESE IS *NOT* ANOTHER NAME FOR THE LARVAL STAGEO             2400203
  A. WORM                                                              2400203
  B. MAGGOT                                                            2400203
  C. CATERPILLAR                                                      2400203
 *D. NYMPH                                                            2400203

THE RESTING STAGE OF AN INSECT IS CALLED THE       STAGE.             2400204
 *A. PUPAE                                                            2400204
  B. EGG                                                              2400204
  C. LARVAL                                                           2400204
  D. ADULT                                                            2400204

WHAT IS THE *MAIN* REASON WHY A NYMPH MOLTSO                          2400205
  A. TO PREPARE ITSELF FOR THE MATING SEASON.
  B. IT DOES NOT HAVE WINGS.                                          2400205
  C. TO MAKE MOVEMENT EASIER.
 *D. IT IS STILL IN THE GROWING STAGE.                                2400205

WHICH OF THESE IS *NOT* A SPECIAL WAY INSECTS HAVE FOR SURVIVINGO     2400206
  A. EYES                                                             2400206
  B. CAMOUFLAGE                                                       2400206
  C. SENSE OF SMELL                                                   2400206
  D. OFFENSIVE GASES                                                  2400206
 *E. INSECTICIDES                                                     2400206


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THE STUDENT WILL SHOW A KNOWLEDGE OF SOCIAL INSECTS BY SELECTING         0045
CHARACTERISTICS THAT PERTAIN TO THEIR FUNCTIONS AS A SOCIAL
INSECT.  %10□

CHOOSE THE CORRECT ANSWER.                                               1

WHICH OF THESE IS *NOT* A SOCIAL INSECTO                              2400207
 *A. BEETLE                                                           2400207
  B. WASP                                                             2400207
  C. HORNET                                                           2400207
  D. HONEYBEE                                                         2400207
  E. ANT

THE BEE THAT CANNOT STING IS THE                                      2400208
  A. QUEEN.                                                           2400208
  B. WORKER.                                                          2400208
 *C. DRONE.                                                           2400208

THE        LAYS THE EGGS.                                             2400209
 *A. QUEEN                                                            2400209
  B. WORKER                                                           2400209
  C. DRONE                                                            2400209
  D. LARVA                                                            2400209

THE BEE THAT DOES *NOT* WORK IS THE                                   2400210
  A. QUEEN.                                                           2400210
  B. WORKER.                                                          2400210
 *C. DRONE.                                                           2400210

SOFTBODIED, HELPLESS WHITE GRUBS THAT CANNOT FEED THEMSELVES          2400211
ARE                                                                   2400211
  A. QUEENS.                                                          2400211
  B. WORKERS.                                                         2400211
  C. DRONES.                                                          2400211
 *D. LARVAE.                                                          2400211
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WHICH OF THE FOLLOWING IS *NOT* A JOB OF THE WORKER BEE?           2400212
  A. GATHER NECTAR                                                  2400212
  B. CONSTRUCT THE HONEYCOMB                                        2400212
  C. ACT AS A NURSE                                                 2400212
 *D. LAY EGGS                                                       2400212

WHEN THE OLD QUEEN AND HER FOLLOWERS LEAVE THE HIVE TO ESTABLISH    2400213
A NEW SOCIETY, IT IS CALLED                                         2400213
 *A. SWARMING.                                                      2400213
  B. MIGRATING.                                                     2400213
  C. POLLINATING.                                                   2400213
  D. SEARCHING.                                                     2400213

THE MAIN *DIFFERENCE* BETWEEN SOCIAL INSECTS AND PEOPLE IN OUR      2400214
SOCIETY IS THAT                                                     2400214
  A. PEOPLE WORK TOGETHER.                                          2400214
  B. PEOPLE SHARE TASKS.                                            2400214
 *C. PEOPLE CAN CHOOSE THE WORK THEY WANT TO DO AND CAN CHANGE      2400214
     THEIR MINDS.                                                   2400214
  D. PEOPLE HAVE SOLDIERS TO HELP PROTECT THEM.                     2400214

THE MAIN REASON WHY BEES TRAVEL FROM FLOWER TO FLOWER IS            2400215
  A. TO CARRY POLLEN.                                               2400215
 *B. TO GATHER FOOD FOR THEMSELVES.                                 2400215
  C. TO GET A VARIETY OF NECTAR.                                    2400215
  D. TO MAKE HONEY FOR PEOPLE.                                      2400215

BEES LIVE IN HIVES, ANTS LIVE IN                                    2400216
  A. NESTS.                                                         2400216
 *B. COLONIES.                                                      2400216
  C. DENS.                                                          2400216
  D. HIVES.                                                         2400216

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CHARACTERISTICS OF PLANTS

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THE STUDENT WILL COMPREHEND THE TWO FUNCTIONS OF THE PLANT ROOT        0001
BY CHOOSING THESE CORRECTLY FROM INCORRECT STATEMENTS ABOUT ROOT
FUNCTIONS.  %4□

CHOOSE THE CORRECT ANSWER.                                                1

THE STRUCTURE OF SUPPORT THAT EMERGES FROM A SEED IS THE               0001
  A. STEM.                                                          2400001
  B. LEAVES.                                                        2400001
 *C. ROOT.                                                          2400001
  D. FLOWER.                                                        2400001
                                                                    2400001

THE *PRIMARY* FUNCTION OF THE PLANT ROOT IS TO .....                   0002
WATER AND MINERALS NEEDED FOR THE PLANT TO LIVE.                    2400002
  A. LEAVE OUT                                                      2400002
  B. STORE                                                          2400002
  C. RELEASE                                                        2400002
 *D. TAKE IN                                                        2400002
                                                                    2400002

AS THE SEEDLINGS GROW, STUDENTS WILL NOTICE       IN THE NUMBER     2400003
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OF ROOT HAIRS ON EACH ROOT.                                             2400003
 *A. AN INCREASE                                                        2400003
  B. A DECREASE                                                         2400003
  C. NO CHANGE                                                          2400003
  D. NONE OF THESE                                                      2400003

THE SUPPORTING SOURCE OF A PLANT IS FORMED BY THE                            04
  A. BUD.                                                               2400004
 *B. ROOT.                                                              2400004
  C. STEM.                                                              2400004
  D. LEAVES.                                                            2400004

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THE STUDENT SHOWS HIS KNOWLEDGE OF THE FIVE TYPES OF TISSUE BY             0002
IDENTIFYING FACTS ABOUT THEIR STRUCTURE AND FUNCTION.  %4¤

CHOOSE THE CORRECT ANSWER.                                                    1

A SINGLE TYPE OF TISSUE IS COMPRISED OF A GROUP OF                           05
 *A. CELLS.
  B. MOLECULES.
  C. ORGANS.
  D. SYSTEMS.

EACH TISSUE HAS A          TASK.                                              6
  A. MULTIPLE                                                           2400006
 *B. SPECIAL                                                            2400006
  C. INDIVIDUAL                                                         2400006
  D. GENERAL                                                            2400006

THE FIVE TYPES OF TISSUE ARE -                                          2400007
  A. DIGESTIVE, SKELETAL, NERVE, EPITHELIAL, BLOOD                      2400007
  B. EXCRETORY, BLOOD, NERVE, MUSCLE, DIGESTIVE                         2400007
 *C. BONE, MUSCLE, NERVE, EPITHELIAL, BLOOD                             2400007
  D. MUSCLE, BONE, NERVE, BLOOD, EXCRETORY                              2400007

YOUR SKIN IS MADE UP OF WHICH TYPE OF TISSUEO                                 8
  A. BLOOD                                                              2400008
  B. BONE                                                               2400008
  C. MUSCLE                                                             2400008
 *D. EPITHELIAL                                                         2400008

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THE STUDENT WILL COMPREHEND THE FOUR PARTS OF A PLANT STEM                 0004
%CAMBIUM, XYLEM, PHLOEM AND VASCULAR BUNDLES¤ BY POINTING TO THE
CORRECT LOCATION ON THE CROSS SECTION OF A STEM CHART.  %2¤

CHOOSE THE CORRECT ANSWER.                                                    1

THE PHLOEM AND XYLEM MAKE UP THE        OF THE STEM.                    2400013
 *A. VASCULAR BUNDLE                                                    2400013
  B. FIBROUS ROOT                                                       2400013
  C. PLANT LEAF                                                         2400013
  D. FOOD CONDUCTING TISSUE                                             2400013

THE CAMBIUM IS A LAYER OF CELLS       THE PHLOEM AND XYLEM.             2400014
  A. BENEATH                                                            2400014
  B. AROUND                                                              2400014
 *C. BETWEEN                                                             2400014
  D. UNDER                                                               2400014

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THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF CLASSIFICATION OF              0027
PLANTS BY SELECTING THE CORRECT CLASSIFICATION FOR GIVEN
PLANTS.  %4□

CHOOSE THE CORRECT ANSWER.                                                    1

FERNS, HORSETAILS AND CLUB MOSSES ARE                                    2400105
  A. THALLOPHYTES.                                                       2400105
  B. BRYOPHYTES.                                                         2400105
 *C. PTERIDOPHYTES.                                                      2400105
  D. SPERMATOPHYTES.                                                     2400105

WHICH OF THESE IS *NOT* A SPERMATOPHYTE□                                 2400106
  A. ROSE                                                                2400106
  B. EVERGREEN                                                           2400106
  C. CUCUMBER                                                            2400106
 *D. LICHEN                                                              2400106

THE THALLOPHYTES ARE THE SIMPLEST PLANTS.  THEY INCLUDE                  2400107
  A. GARDEN FLOWERS.                                                     2400107
  B. FERNS, HORSETAILS, CLUB MOSSES.                                     2400107
 *C. ALGAE AND LICHENS.                                                  2400107
  D. MOSSES AND LIVERWORTS.                                              2400107

AMONG THE BRYOPHYTES ARE                                                 2400108
  A. VEGETABLES AND SHRUBS.                                              2400108
  B. GARDEN FLOWERS.                                                     2400108
 *C. MOSSES AND LIVERWORTS.                                              2400108
  D. FERNS, HORSETAILS AND CLUB MOSSES.                                  2400108
  E. ALGAE, FUNGI AND LICHENS.                                           2400108

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THE STUDENT CAN RECALL THE PARTS OF A FLOWER BY SELECTING THE              0028
CORRECT PART FROM ITS DESCRIPTION OR LOCATION.  %10□

CHOOSE THE CORRECT ANSWER.                                                    1

ONE OF THE GREEN, LEAFLIKE SECTIONS AROUND THE PETAL IS CALLED           2400109
 *A. SEPAL.                                                              2400109
  B. COROLLA.                                                            2400109
  C. CALYX.
  D. ANTHER.                                                             2400109

ALL OF THE PETALS TOGETHER FORM THE                                      2400110
  A. CALYX.                                                              2400110
  B. STYLE.                                                              2400110
 *C. COROLLA.                                                            2400110
  D. STIGMA.                                                             2400110

ALL OF THE SEPALS TOGETHER ARE KNOWN AS THE                              2400111
 *A. CALYX.                                                              2400111
  B. PETALS.                                                             2400111
  C. COROLLA.                                                          2400111
  D. OVARY.                                                            2400111
  E. STYLE.                                                            2400111

THE STRUCTURE THAT SERVES AS A PROTECTIVE RING AROUND THE FLOWER          0112
IS THE
 *A. CALYX.                                                            2400112
  B. PETAL.                                                            2400112
  C. COROLLA.                                                          2400112
  D. OVARY.                                                            2400112
  E. STYLE.                                                            2400112

THE BULB AT THE BOTTOM OF THE FLOWER IS THE                            2400113
  A. PISTIL.                                                           2400113
 *B. OVARY.                                                            2400113
  C. ANTHER.                                                           2400113
  D. COROLLA.                                                          2400113
  E. CALYX.                                                            2400113

A KNOB AT THE END OF EACH STAMEN IS CALLED THE                         2400114
  A. FILAMENT.                                                         2400114
  B. OVARY.                                                            2400114
 *C. ANTHER.                                                           2400114
  D. PETUNIA.                                                          2400114
  E. PISTIL.                                                           2400114

THE FEMALE PART OF THE FLOWER IS                                       2400115
  A. FILAMENT.                                                         2400115
  B. ANTHER.                                                           2400115
  C. STIGMA.                                                           2400115
 *D. PISTIL.                                                           2400115
  E. STAMEN.                                                           2400115

THE MALE PART OF THE FLOWER IS                                         2400116
 *A. ANTHER.                                                           2400116
  B. OVARY.                                                            2400116
  C. STIGMA.                                                           2400116
  D. POLLEN.                                                           2400116
  E. PISTIL.                                                           2400116

WITHIN THE ANTHER ....... DEVELOPS                                     2400117
  A. THE OVULE.                                                        2400117
  B. A PETAL.                                                          2400117
  C. THE SYTLE.                                                        2400117
  D. THE PISTIL.                                                       2400117
 *E. POLLEN.                                                           2400117

THE PARTS THAT DEVELOP INTO SEEDS ARE THE                              2400118
  A. STAMENS.                                                          2400118
  B. OVULES.                                                           2400118
  C. PETALS.                                                           2400118
  D. OVARIES.                                                          2400118
 *E. POLLEN.                                                           2400118

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THE STUDENT WILL SHOW A KNOWLEDGE OF FOOD SOURCES BY IDENTIFYING          0073
THE FOODS WHICH ARE LEAVES, STEMS, ROOTS, SEEDS, OR FRUITS OF
PLANTS.  %4¤
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CHOOSE THE CORRECT ANSWER.

WHEN WE EAT CARROTS OR BEETS WE ARE EATING THE        OF THE             0295
PLANT.                                                                  2400294
  A. LEAF                                                               2400294
  B. STEM                                                               2400294
  C. SEED                                                               2400294
 *D. ROOT                                                               2400294
  E. FRUIT                                                              2400294
                                                                        2400294

WHICH OF THE FOLLOWING IS *NOT* THE FRUIT OF THE PLANTO                    0296
  A. ORANGES                                                            2400295
  B. PEACHES                                                            2400295
 *C. CORN                                                               2400295
  D. PUMPKIN                                                            2400295
                                                                        2400295

BROCCOLI SPEARS ARE CONSIDERED THE          OF THE PLANT.                  0297
  A. LEAF                                                               2400296
 *B. STEM                                                               2400296
  C. SEED                                                               2400296
  D. ROOT                                                               2400296
  E. FRUIT                                                              2400296
                                                                        2400296

LETTUCE AND CABBAGE ARE CONSIDERED THE          OF THE PLANTS.             0298
 *A. LEAVES                                                             2400297
  B. STEMS                                                              2400297
  C. SEEDS                                                              2400297
  D. ROOTS                                                              2400297
  E. FRUITS                                                             2400297
                                                                        2400297

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THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE NITROGEN        0081
CYCLE BY SELECTING THE CHANGES THAT OCCUR AT A PARTICULAR POINT
IN THE CYCLE.  %8¤

USING THE NITROGEN CYCLE, CHOOSE THE CORRECT  RESPONSE.              0009

GREEN PLANTS MAKE THEIR OWN                                           360
 *A. FOOD.                                                        2400359
  B. NITRATES.                                                    2400359
  C. WATER.
  D. OXYGEN.                                                      2400359

WHEN PLANTS AND ANIMALS DECAY, THE PROTEIN IS CHANGED INTO           0361
  A. HYDROGEN.
 *B. NITROGEN.                                                    2400360
  C. CARBON.                                                      2400360
  D. OXYGEN.                                                      2400360

THE SOIL SUPPLIES WHAT AGENT TO CHANGE THE WASTE PRODUCT INTO A      0362
NITRATES AND OTHER CHEMICALSO
  A. SUNLIGHT
  B. OXYGEN                                                       2400361
  C. CARBON                                                       2400361
 *D. BACTERIA                                                     2400361

IN THE COURSE OF MANY YEARS, THE SUBSTANCE WHICH EVENTUALLY IS       0363
USED BY PLANTS TO FORM PROTEINS, BECOMES PART OF A
  A. SULFATE.                                                     2400362
  B. SULFIDE.                                                     2400362
 *C. NITRATE.                                                     2400362
  D. OXIDE.                                                       2400362

THE GREEN PLANT PRODUCES FOOD BY THE PROCESS OF                      0364
  A. RESPIRATION.                                                 2400363
 *B. PHOTOSYNTHESIS.                                              2400363
  C. TRANSPIRATION.                                               2400363

NITRATES ARE USED BY THE PLANT TO FORM                                365
  A. STARCHES.                                                    2400364
  B. SUGARS.                                                      2400364
  C. FATS.                                                        2400364
 *D. PROTEINS.                                                    2400364

THE BY-PRODUCT OF PHOTOSYNTHESIS IN GREEN PLANTS IS                  0366
  A. CHLOROPLASTS.
 *B. SUGAR CHANGED TO CARBOHYDRATES %STARCHES¤.                   2400365
  C. MINERALS.                                                    2400365
  D. PROTEIN.

THE WASTE PRODUCT PRODUCED BY ANIMALS ARE CHANGED TO                 0367
  A. STARCHES.                                                    2400366
  C. OXIDES.                                                      2400366
  B. SUGARS.                                                      2400366
 *D. NITRATES.                                                    2400366

*************************************************************************

AFTER STUDYING THE CHARACTERISTICS OF THE LOWER FORMS OF PLANT       0107
AND ANIMAL CELLS, THE STUDENT CAN APPLY THIS INFORMATION TO
DISTINGUISH WHETHER A GIVEN ORGANISM IS A PLANT OR ANIMAL CELL.
```

%3□

CHOOSE THE CORRECT ANSWER. 1

A CELL CONTAINS CHLOROPHYLL AND MANUFACTURES ITS OWN FOOD. 0414
THIS CHARACTERISTIC IS TYPICAL OF THE CELL OF 2400413
A. AN ANIMAL. 2400413
*B. A PLANT. 2400413
C. BOTH. 2400413
D. NEITHER. 2400413

PROTOPLASM IS FOUND IN A CELL. THIS CELL IS CHARACTERISTIC OF 0415
A. A PLANT. 2400414
B. AN ANIMAL. 2400414
*C. BOTH. 2400414
D. NEITHER. 2400414

THE SIZE OF A CELL IS USUALLY UNLIMITED. THIS CHARACTERISTIC 0416
IS FOUND IN THE CELL OF 2400415
*A. AN ANIMAL. 2400415
B. A PLANT. 2400415
C. NEITHER. 2400415
D. BOTH. 2400415

****

AFTER STUDYING THE CHARACTERISTICS OF BACTERIA AND MOLD, THE 0109
STUDENT CAN APPLY THIS INFORMATION TO DISTINGUISH WHETHER A GIVEN
MICROORGANISM IS A BACTERIA OR MOLD. %3□

CHOOSE THE CORRECT ANSWER. 1

IF THE MICROORGANISM GROWS BEST UNDER MOIST CONDITIONS, IT IS 0421
TYPICAL OF
A. MOLD. 2400420
B. BACTERIA. 2400420
*C. BOTH. 2400420
D. NEITHER. 2400420

IF A MICROORGANISM REPRODUCES ITSELF BY CELL DIVISION, IT IS 0422
TYPICAL OF
A. MOLD. 2400421
*B. BACTERIA. 2400421
C. BOTH. 2400421
D. NEITHER. 2400421

A MICROORGANISM BOTH HARMFUL AND HELPFUL TO MAN, IS TYPICAL OF 0423
A. MOLD. 2400422
B. BACTERIA. 2400422
*C. BOTH. 2400422
D. NEITHER. 2400422

****

THE STUDENT WILL KNOW THREE TYPES OF BACTERIA BY SELECTING 0112
EACH TYPE FROM A GROUP OF TERMS. %3□

CHOOSE THE CORRECT ANSWER. 1

A TYPE OF BACTERIA IS CALLED 429
A. MOLD. 2400428
B. PENICILLIN. 2400428
*C. BACILLI. 2400428

ONE TYPE OF BACTERIA IS 430
A. SQUARE IN SHAPE.
B. TRIANGULAR IN SHAPE.
*C. RODLIKE IN SHAPE.
D. RECTANGULAR IN SHAPE.

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF MONOCOTS AND DICOTS BY SELECTING THE REASON FOR CLASSIFYING EACH AS SUCH. %6¤ 0179

CHOOSE THE CORRECT ANSWER. 1

JOHN WAS STUDYING A CORN PLANT AND DECIDED IT WAS A MONOCOT. WHY? 1160
A. IT HAD NET VEINS.
B. THE ROOTS WERE NOT WOODY.
*C. THE VEINS WERE PARALLEL.
D. THE STEM WAS CIRCULAR.

A SEED IS A DICOT IF IT HAS 1161
A. AN OVAL SHAPE.
B. ONE FOOD PART.
C. A HARD COVERING.
*D. TWO FOOD PARTS.

FLOWERS THAT ARE MONOCOTS HAVE 1162
*A. PETALS IN GROUPS OF FOUR OR FIVE.
B. PETALS IN GROUPS OF THREE, SIX OR NINE.
C. STAMENS IN GROUPS OF TWO OR FOUR.
D. ANTHERS THAT ARE YELLOW.

THE TULIP TREE IS A DICOT BECAUSE THE 1163
*A. BUNDLES OF TUBES ARE ARRANGED IN A RING.
B. BUNDLES OF TUBES ARE NOT ARRANGED.
C. LEAVES ARE PARALLEL VEINED.
D. FLOWERS HAVE THREE, SIX OR NINE PETALS.

MONOCOTS AND DICOTS ARE 1164
A. SPORE MAKERS.
B. MOSSES.
*C. SEED MAKERS.
D. FERNS.

SOME EXAMPLES OF DICOTS ARE 1165
A. ROSES, GRASS, AND APPLE TREES.
B. GRASS, CORN, AND WHEAT.
C. TULIPS, FERNS, LILY.
*D. ROSES, ELM TREES, AND LILACS.

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF PLANT ADAPTATION BY SELECTING THE *MOST* APPROPRIATE REASON WHY THE GIVEN PLANTS HAVE ADAPTED THEMSELVES. %4¤ 0180

CHOOSE THE CORRECT ANSWER. 1

SOME PLANTS PRODUCE MANY SEEDS BECAUSE 1167
A. THERE ARE NOT ENOUGH PLANTS.
B. ONE SEED IS PRODUCED FOR EVERY PETAL.
C. ALL PLANTS DIE DURING WINTER.
*D. NOT ALL OF THE SEEDS WILL GROW.

CACTI HAVE THICK WAXY LEAVES BECAUSE 1168
*A. IT HELPS KEEP MOISTURE IN THE PLANT.
B. SEVERAL LEAVES GROW TOGETHER.
C. BEES PUT WAX ON THE LEAVES.
D. IT ATTRACTS ANIMALS TO IT.

CACTI HAVE THORNS TO PROTECT THEM BECAUSE 1169
A. ANIMALS LIKE TO LIE IN THEIR SHADE.
B. THORNS HELP BLOCK THE SUN.
*C. ANIMALS TRY TO GET THEIR STORED WATER.
D. ANIMALS WILL CHEW ON THE THORNS INSTEAD OF THE LEAVES.

****

THE STUDENT WILL SHOW HIS ABILITY TO DRAW CONCLUSIONS ABOUT 0181
PHOTOSYNTHESIS BY SELECTING THE CORRECT CONCLUSION. %6¤

SELECT THE ANSWER WHICH IS *NOT* CORRECT. 48

SEED MAKERS 1172
A. ELM TREES
B. PETUNIAS
*C. MUSHROOMS
D. ASTERS

SPORE MAKERS 1173
A. FERNS
*B. ALGAE
C. MOSSES
D. MUSHROOMS

MAKES SEEDS FROM FLOWERS 1174
A. ROSES
B. TULIPS
C. MAPLE TREE
*D. PINE TREE

MAKES SEEDS FROM CONES 1175
*A. ELM TREE
B. CEDAR
C. BALSAM FIR
D. SPRUCE

PLANTS THAT DO *NOT* MAKE SEEDS 1176
A. FUNGI
B. MOLD
*C. GRASS
D. ALGAE

PLANTS THAT DO *NOT* MAKE SPORES 1177
*A. MOLD

B. ALGAE
C. YEAST
D. BACTERIA

****

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF THE FLOWER PARTS BY IDENTIFYING EACH PART IN A DIAGRAM. %7¤ %NEED DIAGRAM OF FLOWER¤ 0182

CHOOSE THE CORRECT ANSWER. 1

THE OVARY IS NUMBER 1188
A. TWO.
B. FIVE.
C. SEVEN.
D. THREE.

THE STAMEN IS NUMBER 1189
A. THREE.
B. FOUR.
C. ONE.
D. TWO.

THE ANTHER IS NUMBER 1190
A. ONE.
B. TWO.
C. THREE.
D. FOUR.

THE PETALS ARE NUMBER 1191
A. SEVEN.
B. THREE.
C. FIVE.
D. FOUR.

THE PISTIL IS NUMBER 1192
A. ONE.
B. FIVE.
C. THREE.
D. SIX.

THE OVULE IS NUMBER 1193
A. TWO.
B. SIX.
C. FOUR.
D. FIVE.

THE SEPALS ARE NUMBER 1194
A. ONE.
B. THREE.
C. SEVEN.
D. FOUR.

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF PLANTS BY SELECTING THE RELATIONSHIP IDENTICAL TO A GIVEN RELATIONSHIP. %10¤ 0187

CIRCLE THE LETTER OF THE ITEM WHICH HAS THE SAME RELATIONSHIP 0053
AS THE GIVEN PAIR.

SEEDS ARE TO TULIPS AS SPORES ARE TO 1238
A. YEAST.
B. FERN.
C. MONOCOT.
*D. SUNFLOWER.

SUNFLOWER IS TO ROSE AS PINE TREE IS TO 1239
A. MAPLE TREE.
*B. LILY.
C. ELM TREE.
D. SPRUCE TREE.

DICOT IS TO ROSE AS MONOCOT IS TO 1240
*A. GRASS.
B. WILLOW TREE.
C. TULIP.
D. DAISY.

GRASS IS TO CORN AS MONOCOT IS TO 1241
A. ELM TREE.
B. DICOT.
*C. MONOCOT.
D. MUSHROOMS.

YEAST IS TO MOLD AS MOLD IS TO 1242
A. DAISY.
B. MOSSES.
*C. MUSHROOMS.
D. FERN.

DICOT IS TO SEEDS AS MONOCOT IS TO 1243
A. FERNS.
B. FLOWERS.
C. SPORES.
*D. SEEDS.

MOSS IS TO ROBIN AS FERN IS TO 1244
A. ROSE.
*B. OSTRICH.
C. CACTUS.
D. MOSS.

FUNGI IS TO MUSHROOM AS MUSHROOM IS TO 1245
A. MOLD.
B. MOSS.
C. FERN.
*D. POISON AMANITA.

COCCI IS TO BACTERIA AS MOLD IS TO 1246
A. FERN.
B. ALGAE.
*C. FUNGUS.
D. MOSS.

FLOWERS ARE TO MONOCOTS AS CONES ARE TO 1247
*A. CONIFERS.
B. DICOTS.
C. MOSSES.

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  D. ALGAE.

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THE STUDENT WILL DEMONSTRATE HIS COMPREHENSION OF CELL DIVISION          0273
BY MATCHING A SPECIFIED FUNCTION WITH THE STAGE OF MITOSIS IT
DESCRIBES.  %5¤

CHOOSE THE CORRECT ANSWER.
                                                                            1

IN ONE CELLED PLANTS, MITOSIS IS MAINLY FOR                           2400553
  A. GROWTH.                                                          2400553
 *B. REPRODUCTION.                                                    2400553
  C. HEALING.                                                         2400553
  D. HEALTH.                                                          2400553

HOW MANY STAGES OF MITOSIS ARE THERE0                                 2400554
  A. 1                                                                2400554
  B. 2                                                                2400554
  C. 3                                                                2400554
 *D. 4                                                                2400554

MITOSIS IS CELL DIVISION FOR                                          2400555
  A. GROWTH.                                                          2400555
  B. REPRODUCTION.                                                    2400555
  C. HEALING.                                                         2400555
 *D. ALL THREE.                                                       2400555

DURING MITOSIS, THE CHROMOSOMES SPLIT DURING THE STEP CALLED          2400556
  A. PROPHASE.                                                        2400556
  B. METAPHASE.                                                       2400556
 *C. ANAPHASE.                                                        2400556
  D. TELOPHASE.                                                       2400556

IN MULTI-CELLED ORGANISMS, MITOSIS IS *MAINLY* FOR                       0558
  A. HEALING.                                                         2400558
 *B. GROWTH.                                                          2400558
  C. REPRODUCTION.                                                    2400558
  D. HEALTH.                                                          2400558

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THE STUDENT WILL ANALYZE THE PROCESS BY WHICH PLANTS MANUFACTURE         0288
THEIR OWN FOOD BY IDENTIFYING SUBSTANCES AND CHEMICAL CHANGES
THAT MAKE UP THE PROCESS.  %9¤

CHOOSE THE CORRECT ANSWER.
                                                                            1

PLANTS NEED SOIL, WATER AND AIR FOR GROWTH.  THE NAME OF THE          2400657
COLORLESS GAS THE PLANT ABSORBS FROM THE AIR IS
  A. OXYGEN.                                                          2400657
 *B. CARBON DIOXIDE.                                                  2400657
  C. NITROGEN.                                                        2400657

A TREE MAKES ITS OWN FOOD BY                                          2400658
 *A. COMBINING CARBON DIOXIDE AND WATER TO MAKE SUGARS AND            2400658
     STARCHES.                                                        2400658
  B. COMBINING OXYGEN AND WATER TO MAKE FOOD SUBSTANCES.              2400658
  C. COMBINING NITROGEN AND WATER TO MAKE SUGARS AND STARCHES.        2400658
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HOW DOES THE PLANT OBTAIN THE MINERALS FROM THE SOILO                 0659
  A. THE MINERALS ARE TAKEN IN BY THE ROOTS.                       2400659
  B. THE MINERALS ARE TAKEN FROM THE AIR.                          2400659
 *C. THE MINERALS ARE DISSOLVED IN WATER AND ABSORBED BY THE ROOT  2400659
     HAIRS.                                                        2400659

A FARMER PLANTED CORN FOR TWO YEARS IN A ROW.  CORN TAKES NITRAT-  2400660
ES OUT OF THE SOIL.  IN ORDER TO REPLACE THE NITRATES, THE FARMER  2400660
SHOULD                                                             2400660
  A. REPLANT THE CORN NEXT SPRING, BUT NOT HARVEST IT.             2400660
  B. LET THE FIELD STAND IDLE, IN THIS WAY NO MORE NITRATES WOULD  2400660
     BE TAKEN.                                                     2400660
 *C. PLANT A BEAN CROP OR ALFALFA TO REPLACE THE NITRATES.         2400660

WHAT NAME IS GIVEN TO SUBSTANCES THAT PUT NITRATES AND                0661
PHOSPHATES BACK IN THE SOILO
 *A. FERTILIZERS                                                   2400661
  B. MINERALS                                                      2400661
  C. COMPOUNDS                                                     2400661

GREEN PLANTS CAN MANUFACTURE THEIR OWN FOOD UNDER CERTAIN          2400662
CONDITIONS.  IF THEY ABSORB THE DISSOLVED MINERALS FROM THE SOIL
AND CARBON DIOXIDE FROM THE AIR, PLANTS STILL NEED
  A. COOL TEMPERATURE AND WATER.                                   2400662
 *B. HEAT AND SUNLIGHT.                                            2400662
  C. DARKNESS AND HUMIDITY.                                        2400662

HEATING SUGAR SHOWS THAT SUGAR IS A COMBINATION OF CHEMICAL           0663
SUBSTANCES.  THESE SUBSTANCES ARE                                  2400663
 *A. CARBON AND WATER VAPOR.                                       2400663
  B. OXYGEN AND WATER VAPOR.                                       2400663
  C. NITROGEN AND WATER VAPOR.                                     2400663

NOW THAT WE KNOW SUGAR IS MADE OF CARBON AND WATER VAPOR, WE CAN   2400664
SAY SUGAR IS MADE OF                                               2400664
 *A. CARBON, OXYGEN, HYDROGEN.                                     2400664
  B. CARBON, NITROGEN, AND WATER.                                  2400664
  C. HYDROGEN, OXYGEN AND NITROGEN.                                2400664

JOHNNY WAS EXPERIMENTING WITH CARBON, OXYGEN, AND HYDROGEN.  SOME  2400665
OF THE SUBSTANCES HE MADE BY COMBINING THESE ELEMENTS WERE         2400665
  A. SUGAR AND STARCH.                                             2400665
 *B. WATER VAPOR, AND CARBON DIOXIDE.                              2400665
  C. HYDROGEN PEROXIDE.                                            2400665


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THE STUDENT WILL ANALYZE AN EXPERIMENT INVOLVING THE USE OF           0289
STORED PLANT FOOD BY IDENTIFYING THE CAUSE FOR CONTINUED PLANT
GROWTH.  %1□

CHOOSE THE CORRECT ANSWER.                                               1

JANE MEASURED THE THICKEST PART OF AN ONION BULB AND RECORDED IT.  2400668
                                                                   2400668
SHE THEN PLACED IT IN A GLASS OF WATER SO THAT THE BOTTOM JUST     2400668
                                                                   2400668
TOUCHED THE WATER.  FINALLY SHE PLACED IT IN A DARK CLOSET.        2400668
                                                                   2400668
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AFTER A FEW WEEKS, SHE TOOK IT OUT OF THE CLOSET AND FOUND IT HAD      2400668
                                                                       2400668
GROWN ROOTS AND A STEM.  SHE MEASURED THE ONION AGAIN AND IT WAS       2400668
                                                                       2400668
SMALLER.  WHICH OF THE FOLLOWING STATEMENTS BEST EXPLAINS HER          2400668
                                                                       2400668
FINDINGS.                                                              2400668
  A. THE DARKNESS OF THE CLOSET CAUSED IT TO SHRINK.                   2400668
 *B. SOME OF THE FOOD STORED IN THE BULB WAS USED FOR GROWTH.          2400668
  C. NOT ENOUGH INFORMATION GIVEN.                                     2400668

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THE STUDENT WILL BE ABLE TO APPLY HIS KNOWLEDGE OF PLANTS AND             0290
FUNGI BY SELECTING DISTINGUISHING CHARACTERISTICS OF GREEN PLANTS
AND FUNGI.  %4□

CHOOSE THE CORRECT ANSWER.
                                                                             1

ONE OF THE MAIN REASONS WHY FUNGI PLANTS CANNOT MANUFACTURE THEIR      2400669
OWN FOOD IS THAT THEY LACK                                             2400669
 *A. CHLOROPHYLL.                                                      2400669
  B. CYTOPLASM.                                                        2400669
  C. PROTOPLASM.                                                       2400669

WHAT ARE SOME OF THE SOURCES FROM WHICH FUNGI PLANTS CAN OBTAIN           0670
FOODO
  A. SOIL AND ROCK                                                     2400670
 *B. DEAD PLANTS AND ANIMALS                                           2400670
  C. ATMOSPHERE AND WATER                                              2400670

AN EXAMPLE OF A FUNGUS PLANT WOULD BE A
                                                                           671
  A. GREEN PLANT.                                                      2400671
 *B. BREAD MOLD.                                                       2400671
  C. DEAD PLANT.                                                       2400671

YEAST IS CALLED A FUNGUS BECAUSE                                       2400673
  A. IT CAN MAKE ITS OWN FOOD.                                         2400673
  B. IT HAS A GREEN COLOR.                                             2400673
 *C. IT CANNOT MAKE ITS OWN FOOD.                                      2400673

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THE STUDENT WILL ANALYZE DIFFERENT PLANT ENVIRONMENTS AND SELECT          0291
THE BEST ENVIRONMENT FOR A PARTICULAR PLANT.  %2□

CHOOSE THE CORRECT ANSWER.
                                                                             1

SUGAR BEETS AND VIOLETS WERE PLACED IN SANDY SOIL AND IN DIRECT        2400676
SUNLIGHT.  BOTH WERE WATERED EVERY OTHER DAY.  THE VIOLETS DID         2400676
NOT GROW VERY WELL BECAUSE THE ENVIRONMENT                             2400676
  A. WAS LACKING SUFFICIENT SUNLIGHT FOR THE VIOLETS.                  2400676
 *B. DID NOT SATISFY THE NEEDS OF THE VIOLETS.                         2400676
  C. LACKED SUFFICENT WATER FOR THE VIOLETS.                           2400676

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THE STUDENT WILL ANALYZE DIFFERENT GROWING SITUATIONS FOR PLANTS          0292
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BY IDENTIFYING THE MAIN CONDITION THAT CAUSED LACK OF PLANT
GROWTH.  %2□

CHOOSE THE CORRECT ANSWER.                                                    1

PLANT A HAS AN UNUSUALLY *LONG* STEM, LIGHT GREEN COLOR, AND            2400678
*VERY* FEW LEAVES.  PLANT A WAS MOST LIKELY GROWN IN                    2400678
 *A. A *DARK* PLACE.                                                    2400678
  B. *DIRECT* SUNLIGHT.                                                 2400678
  C. *GOOD* SOIL.                                                       2400678

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AFTER STUDYING THE TYPES OF BACTERIA, THE STUDENT WILL DEMON-              0108
STRATE AN UNDERSTANDING OF THE TYPES OF BACTERIA BY MATCHING
CHARACTERISTICS OF MICROBES WITH THE PROPER KIND OF BACTERIA. %3□

CHOOSE THE CORRECT ANSWER.                                                    1

WHAT TYPE OF BACTERIA WOULD BE GROWING ON A PIECE OF CLOVERO               0418
  A. SPIRILLA.                                                          2400417
  B. BACILLI.                                                           2400417
  C. COCCI.                                                             2400417
 *D. NOT ENOUGH INFORMATION GIVEN.                                      2400417

WHAT TYPE OF BACTERIA ARE SPHERICAL LIKE TINY MARBLES UNDER A              0419
MICROSCOPEO
  A. SPIRILLA.                                                          2400418
  B. BACILLI.                                                           2400418
 *C. COCCI.                                                             2400418
  D. ALL OF THE ABOVE.                                                  2400418

WHAT TYPE OF BACTERIA ARE SHAPED LIKE LITTLE RODSO                         0420
 *A. BACILLI.                                                           2400419
  B. SPIRILLA.                                                          2400419
  C. COCCI.                                                             2400419
  D. ALL OF THE ABOVE.                                                  2400419

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                                NATURE OF MATTER


THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF MOLECULES BY SELECT-           0023
ING THE PROPERTIES OF THEM FROM A SERIES OF QUESTIONS.  %5□

CHOOSE THE CORRECT ANSWER.                                                    1

WHICH OF THE FOLLOWING IS *ALWAYS* TRUE OF MOLECULESO                   2400085
 *A. THEY NEVER STOP MOVING.                                            2400085
  B. THEY MOVE IN ONLY ONE DIRECTION.
  C. THEY ALWAYS MOVE VERY SLOWLY.                                      2400085
  D. THEY ALWAYS MOVE AT THE SAME RATE.                                 2400085

MOLECULES ARE MADE UP OF                                                2400086
  A. MODELS.                                                            2400086
  B. MOTION.                                                            2400086
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*C. ATOMS. 2400086
D. BUBBLES. 2400086

HEAT ENERGY IS PRODUCED WHEN MOLECULES 2400087
A. STOP. 2400087
*B. MOVE FASTER. 2400087
C. MOVE SLOWER. 2400087
D. SPREAD OUT. 2400087

WHEN HEAT ENERGY IS APPLIED TO MOLECULES THEY 2400088
*A. MOVE FASTER. 2400088
B. EXPAND. 2400088
C. CONTRACT. 2400088
D. DISAPPEAR. 2400088

WHEN MOLECULES ARE COOLED THEY 2400089
A. STOP MOVING. 2400089
B. MOVE FASTER. 89
*C. MOVE MORE SLOWLY. 2400089
D. SHRINK. 2400089

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THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF MATTER BY SELECTING 0024
THE CHARACTERISTICS FROM A SERIES OF QUESTIONS. %5n

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THE FOLLOWING IS *NOT* A CHARACTERISTIC OF MATTERO 2400090
*A. ITS STATE ALWAYS REMAINS THE SAME.
B. IT IS MADE UP OF MOLECULES AND ATOMS. 2400090
C. IT TAKES UP SPACE. 2400090
D. IT HAS WEIGHT. 2400090

WHICH OF THE FOLLOWING IS *NOT* A STATE OF MATTERO 2400091
A. GAS 2400091
B. LIQUID 2400091
*C. ATOM 2400091
D. SOLID 2400091

MOLECULES VIBRATE IN A FIXED POSITION IN 2400092
A. A GAS. 2400092
B. A LIQUID. 2400092
C. AN ATOM. 2400092
*D. A SOLID. 2400092

IN WHICH STATE OF MATTER ARE THE MOLECULES FARTHEST APARTO 2400093
*A. GAS 2400093
B. LIQUID 2400093
C. ATOM 2400093
D. SOLID 2400093

IN .... THE MOLECULES ARE FREE TO MOVE OVER AND AROUND EACH 2400094
OTHER. 2400094
A. A CRYSTAL 2400094
*B. A LIQUID 2400094
C. AN ATOM 2400094
D. A SOLID 2400094

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THE STUDENT CAN DISTINGUISH BETWEEN AN ELEMENT AND A COMPOUND BY          0047
SELECTING EXAMPLES AND DEFINITIONS FOR EACH.  %4ロ

CHOOSE THE CORRECT ANSWER.                                                   1

A SUBSTANCE COMPOSED OF ONLY ONE KIND OF ATOM IS                       2400222
  A. A MIXTURE.                                                        2400222
 *B. AN ELEMENT.                                                       2400222
  C. A COMPOUND.                                                       2400222
  D. A SOLUTION.                                                       2400222

WHICH OF THE FOLLOWING IS NOT A COMPOUNDO                              2400223
  A. SOAP                                                              2400223
  B. STARCH                                                            2400223
  C. SALT                                                              2400223
 *D. SILVER                                                            2400223
  E. ALCOHOL                                                           2400223

THE SMALLEST PART OF SUGAR IS A SUGAR                                  2400224
  A. ATOM.                                                             2400224
  B. ELEMENT.                                                          2400224
 *C. MOLECULE.                                                         2400224
  D. SOLUTION.                                                         2400224

WHICH OF THE FOLLOWING SENTENCES IS *NOT* ABOUT A COMPOUNDO            2400225
  A. IRON AND OXYGEN FORM IRON OXIDE.                                  2400225
  B. THE CHEMICAL SYMBOL FOR WATER IS H O.
                                      2
  C. SUGAR MOLECULES ARE MADE UP OF CARBON, HYDROGEN AND OXYGEN        2400225
     ATOMS.                                                            2400225
 *D. THE CHEMICAL SYMBOL FOR OXYGEN IS O .
                                       2

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THE CHILD CAN DISTINGUISH BETWEEN A PHYSICAL CHANGE AND A                 0050
CHEMICAL CHANGE BY SELECTING EXAMPLES FOR EACH.  %3ロ

CHOOSE THE CORRECT ANSWER.                                                   1

WHICH OF THE FOLLOWING IS A CHEMICAL CHANGEO                           2400230
  A. MELTING                                                           2400230
  B. FREEZING                                                          2400230
 *C. BURNING                                                           2400230
  D. EVAPORATING                                                       2400230

WHICH OF THE FOLLOWING SENTENCES DESCRIBES A PHYSICAL CHANGEO          2400231
  A. GASOLINE BURNS IN A MOTOR.                                        2400231
 *B. SALT DISSOLVES IN WATER.                                          2400231
  C. A CANDLE BURNS.                                                   2400231
  D. IRON RUSTS.                                                       2400231

A CHANGE IN A COMPOUND IS PHYSICAL IF                                      232
  A. THE MOLECULES OF A SUBSTANCE CHANGE.                              2400232
 *B. THE MOLECULES OF A SUBSTANCE DO NOT CHANGE.                       2400232
  C. THE ATOMS ARE ARRANGED DIFFERENTLY.                               2400232
  D. SOME OF THE MOLECULES ARE LOST.                                   2400232
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THE STUDENT WILL KNOW THE MEANING OF MIXTURE, ELEMENT, AND           0120
COMPOUND BY SELECTING THE CORRECT DEFINITION FOR EACH TERM.
%2□

CHOOSE THE CORRECT ANSWER.                                              1

MIXTURE IS DEFINED AS                                                 459
  A. TWO OR MORE ELEMENTS THAT COMBINE.
  B. THREE OR MORE SUBSTANCES THAT ARE CHEMICALLY BONDED.         2400458
 *C. TWO OR MORE SUBSTANCES COMBINED BUT NOT CHEMICALLY BONDED.

COMPOUND IS DEFINED AS                                                460
  A. TWO OR MORE SUBSTANCES THAT ARE PHYSICALLY UNITED.
 *B. A NEW SUBSTANCE DIFFERENT FROM THE SUBSTANCES FROM WHICH      2400459
     IT WAS ORIGINALLY MADE.                                       2400459
  C. A SUBSTANCE THAT IS MADE UP OF ONLY ONE GENERAL TYPE OF       2400459
     ATOM.                                                         2400459

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GIVEN A STATE OF MATTER. THE STUDENT CAN COMPREHEND THE              0121
DIFFERENCE BETWEEN SOLID, LIQUID, AND GAS BY SELECTING WHICH
FORM OF MATTER IS BEING DESCRIBED.  %3□

CHOOSE THE CORRECT ANSWER.                                              1

WHEN WATER IS FROZEN IN A BOX, THIS NEW STATE OF MATTER IS A       2400461
  A. GAS.                                                          2400461
  B. LIQUID.                                                       2400461
 *C. SOLID.                                                        2400461

WHEN WATER IS CONVERTED TO STEAM VAPOR, THIS NEW STATE OF MATTER   2400462
IS A                                                               2400462
 *A. GAS.                                                          2400462
  B. LIQUID.                                                       2400462
  C. SOLID.                                                        2400462

WHEN HEATING AN ICECUBE, A NEW STATE OF MATTER IS FORMED.  THIS    2400463
NEW STATE OF MATTER IS A                                           2400463
  A. GAS.                                                          2400463
 *B. LIQUID.                                                       2400463
  C. SOLID.                                                        2400463

**************************************************************************

GIVEN A LIST OF DEFINITIONS, THE STUDENT WILL SHOW THAT HE CAN       0208
RECALL THE STATES OF MATTER BY MATCHING THE STATE WITH ITS
CORRECT DEFINITION.  %3□

MATCH THE WORD WITH THE CORRECT DEFINTION.                             58
  A. SOLID
  B. LIQUID
  C. GAS

TAKES THE SHAPE OF ITS CONTAINER BUT CANNOT EXPAND FREELY TO FILL    1338
IT  *B
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KEEPS ITS OWN SHAPE *A 1339

TAKES THE SHAPE OF ITS CONTAINER AND EXPAND FREELY TO FILL IT *C 1340

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GIVEN A LIST OF OBJECTS, THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE THREE STATES OF MATTER BY IDENTIFYING EXAMPLES OF EACH STATE FROM A LIST. %10□ 0209

CHOOSE THE CORRECT ANSWER. 1

AN EXAMPLE OF A SOLID IS 1341
  A. OXYGEN.
 *B. METAL.
  C. ROOT BEER.
  D. COFFEE.

AN EXAMPLE OF A SOLID IS 1342
  A. WATER.
  B. MILK.
  C. HELIUM.
 *D. TIN.

OF THE FOLLOWING EXAMPLES, ONLY IS A SOLID. 1343
 *A. GOLD.
  B. OXYGEN.
  C. CARBON-DIOXIDE.
  D. INK.

OF THE FOLLOWING EXAMPLES, ONLY IS A LIQUID. 1344
  A. COPPER
  B. ZINC
 *C. LIME JUICE
  D. HELIUM

ONE EXAMPLE OF A LIQUID IS 1345
 *A. WATER.
  B. IRON.
  C. FREON.
  D. SILVER.

OF THE FOLLOWING EXAMPLES, ONLY IS A GAS. 1346
  A. TEA
  B. SOUP
  C. COAL
 *D. OXYGEN

OF THE FOLLOWING EXAMPLES, ONLY IS A GAS. 1347
  A. COPPER
 *B. HELIUM
  C. ZINC
  D. WATER

OF THE FOLLOWING EXAMPLES, ONLY IS A LIQUID. 1348
  A. TIN FOIL
 *B. ORANGE JUICE
  C. ALUMINUM FOIL
  D. CARBON-MONOXIDE

AN EXAMPLE OF A GAS IS 1349

*A. NEON.
B. ICE.
C. GRANITE.
D. LAVA.

AN EXAMPLE OF A SOLID IS 1350

A. GRAPE JUICE.
B. CREAM.
C. HELIUM.
*D. LIMESTONE.

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THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE DEFINITIONS OF THE THREE STATES OF MATTER BY APPLYING THE DEFINITIONS TO NEW SITUATIONS. %10□ 0210

CHOOSE THE CORRECT ANSWER. 1

BILL WAS GIVEN A CLOSED JAR OF *HELIUM*, A GLASS OF *WATER* AND A BRICK AND TOLD TO USE ONE OF THESE REPRESENTATIVES OF EACH STATE OF MATTER TO GET A BOOK JUST BEYOND HIS REACH. HE WOULD USE   TO GET THE BOOK. 1351

A. THE HELIUM
*B. THE BRICK
C. THE WATER

MARY WAS GIVEN A CUP OF MILK, A BALLOON FILLED WITH HYDROGEN, AND A BAR OF ALUMINUM AND TOLD TO USE ONE OF THESE REPRESENTATIVES OF EACH OF THE THREE STATES OF MATTER TO SUPPORT THE CORNER OF A COFFEE TABLE WHICH WAS MISSING A LEG. SHE WOULD USE   TO SUPPORT THE CORNER. 1352

A. THE MILK
B. THE HYDROGEN
*C, THE ALUMINUM

JOHN WAS GIVEN A PINT OF WATER, A PINT OF HELIUM, AND A PINT OF TALCUM POWDER AND TOLD TO COMPLETELY FILL A GALLON CONTAINER WITH ONE OF THE THREE REPRESENTATIVES OF THE STATES OF MATTER. JOHN WOULD USE THE   TO COMPLETELY FILL THE GALLON CONTAINER. 1353

*A. HELIUM
B. WATER
C. TALCUM POWDER

GEORGE WAS GIVEN A BAR OF LEAD, A QUART OF OIL AND A QUART JAR OF OXYGEN AND TOLD TO USE ONE OF THE REPRESENTATIVES OF THE THREE STATES OF MATTER TO FILL THE BOTTOM ONE-FOURTH OF A GALLON CONTAINER. GEORGE USED   TO FILL THE BOTTOM ONE-FOURTH OF THE GALLON CONTAINER. 1354

*A. THE OIL
B. THE LEAD
C. THE OXYGEN

JANE WAS ASKED TO COMPLETELY FILL HER CLASSROOM WITH ONE OF THE FOLLOWING REPRESENTATIVES OF THE THREE STATES OF MATTER. SHE WAS GIVEN A GALLON OF COFFEE, AND ONE QUART OF CHLORINE GAS, AND FIVE POUNDS OF SALT. JANE USED   TO COMPLETELY FILL HER 1355

CLASSROOM.
A. THE COFFEE
B. THE SALT
*C. THE GAS

ANN WAS ASKED TO KEEP A FISH TANK OFF THE TABLE BY USING ONE OF THE REPRESENTATIVES OF THE THREE STATES OF MATTER GIVEN TO HER. SHE WAS GIVEN A BLOCK OF WOOD, A JAR OF MUSTARD, AND A JAR OF OXYGEN AND WAS TOLD NOT TO USE THE CONTAINERS THEY WERE IN. ANN USED TO KEEP THE FISH TANK OFF THE TABLE. 1356
A. THE MUSTARD
*B. THE WOOD
C. THE OXYGEN

JAMES WAS GIVEN A PINT OF MOLTEN COPPER THAT HAD HARDENED INTO A BALL, A PINT OF TEA, AND A PINT OF HYDROGEN, AND ASKED TO FILL THE BOTTOM OF A SQUARE, GALLON CONTAINER SO THAT THE BOTTOM IS COMPLETELY COVERED. JAMES USED TO FILL THE BOTTOM OF THE CONTAINER SO THAT THE BOTTOM WAS COMPLETELY COVERED. 1357
A. THE COPPER
B. THE HYDROGEN
*C. THE TEA

DANIEL WAS ASKED TO COMPLETELY FILL A 50 GALLON BARREL WITH ONE OF THE THREE STATES OF MATTER. HE WAS GIVEN A GALLON JAR OF HELIUM, A GALLON JAR OF MILK, AND A PIECE OF ZINC EQUAL TO ONE GALLON. DANIEL USED TO COMPLETELY FILL THE 50 GALLON BARREL. 1358
*A. THE HELIUM
B. THE ZINC
C. THE MILK

BARBARA WAS GIVEN AN EMPTY 10 GALLON JAR AND ASKED TO FILL THE BOTTOM HALF USING ONE OF THE THREE STATES OF MATTER. THE THREE REPRESENTATIVE SAMPLES OF MATTER GIVEN TO HER WERE 5 GALLONS OF CARBON-DIOXIDE, A BALL OF LEAD EQUAL TO 5 GALLONS WHEN MELTED, AND 5 GALLONS OF INK. BARBARA USED TO FILL THE BOTTOM HALF OF THE 10 GALLON JAR. 1359
A. THE LEAD
*B. THE INK
C. THE CARBON-DIOXIDE

JILL WAS GIVEN A BAR OF IRON, A PINT OF ORANGE JUICE, AND A GALLON OF OXYGEN AND WAS ASKED TO USE ONE OF THESE REPRESENTATIVES OF EACH OF THE THREE STATES OF MATTER TO KEEP A WINDOW UP. SHE WAS INSTRUCTED NOT TO USE THE CONTAINERS IN WHICH THE MATTER WAS KEPT. JILL USED TO KEEP THE WINDOW UP. 1360
A. THE OXYGEN
B. THE JUICE
*C. THE IRON

****

THE STUDENT WILL ANALYZE GIVEN SITUATIONS RELATIVE TO THE THREE STATES OF MATTER BY CORRECTLY IDENTIFYING WHICH STATE OF MATTER IS BEING DISCUSSED. %10m 0211

CHOOSE THE CORRECT ANSWER. 1

JOHN FINISHED TELLING HIS STORY BY SAYING, WHEN IT HIT THE 1361

[illegible] THE STATE OF MATTER BEING DISCUSSED IS
A
 A. GAS.
 B. LIQUID.
*C. SOLID.

AFTER SCREAMING THAT IT HAD SPLASHED ALL OVER THE FLOOR, MARY RAN OUT OF THE ROOM. THE STATE OF MATTER BEING DISCUSSED IS A 1362
*A. LIQUID.
 B. GAS.
 C. SOLID.

AFTER BREAKING THROUGH THE PLATE GLASS WINDOW IT HIT THE METAL WASTEBASKET AND LEFT A DENT IN IT. EXCLAIMED GEORGE. 1363
THE STATE OF MATTER BEING DISCUSSED IS A
*A. SOLID.
 B. GAS.
 C. LIQUID.

THE CONTENTS OF THE JAR QUICKLY FILLED THE ENTIRE ROOM AFTER THE TOP WAS REMOVED BY NANCY. THE STATE OF MATTER BEING DISCUSSED IS A 1364
 A. LIQUID.
 B. SOLID.
*C. GAS.

JIM GRABBED THE GLASS CONTAINER AND THREW IT AS HARD AS HE COULD INTO THE EMPTY OIL DRUM AND SLAMMED THE CLEAR PLASTIC LID ON THE DRUM. THE OIL DRUM WAS COMPLETELY FILLED IMMEDIATELY. 1365
THE STATE OF MATTER BEING DISCUSSED IS A
 A. SOLID.
*B. GAS.
 C. LIQUID.

THE CONTAINER STRUCK THE GROUND AND THE LID FELL OFF. AFTER THE LID FELL OFF, THE CONTENTS SLOWLY SPREAD ACROSS THE FLOOR. 1366
THE STATE OF MATTER BEING DISCUSSED IS A
*A. LIQUID.
 B. GAS.
 C. SOLID.

JOHN THREW THE CONTAINER AGAINST THE WALL AND LAUGHED AS THE CONTENTS RAN DOWN THE WALL AND ONTO THE FLOOR. THE STATE OF MATTER BEING DISCUSSED IS A 1367
 A. GAS.
 B. SOLID.
*C. LIQUID.

BETTY CAUTIOUSLY LIFTED THE TOP OF THE CONTAINER AND ALMOST IMMEDIATELY THE ENTIRE LUNCHROOM WAS FILLED WITH A HORRIBLE STINK. THE STATE OF MATTER BEING DISCUSSED IS A 1368
 A. SOLID.
*B. GAS.
 C. LIQUID.

ADRIENNE CONTINUED TELLING ABOUT HER FAMILY VACATION BY SAYING. AS WE WERE DRIVING THROUGH THE MOUNTAINS, IT ROLLED DOWN THE SIDE AND CRASHED INTO THE SIDE OF OUR CAR, LEAVING A HUGE DENT IN THE DOOR. 1369
THE STATE OF MATTER BEING DISCUSSED IS A
 A. LIQUID.

*C. SOLID.

AS USUAL, DAVID AND HIS SISTER NANCY WERE GOOFING OFF AT THE PICNIC. NANCY GRABBED THE CONTAINER, PUT HER THUMB OVER THE OPENING, SHOOK IT, AND POINTED THE CONTAINER AT HER BROTHER. JUST AS DAVID JUMPED BEHIND HIS FATHER, NANCY TOOK HER THUMB OFF THE OPENING AND THE CONTENTS SQUIRIED ALL OVER HER FATHER. THE STATE OF MATTER BEING DISCUSSED IS A 1370

*A. LIQUID.
B. GAS.
C. SOLID.

****

SUSAN WALKED INTO THE DYNAMITE STORAGE ROOM AND TO HER HORROR SAW THAT THE CEILING WAS BURNING FIERCELY. IN THE CENTER OF THE ROOM WAS A CRATE FILLED WITH ONE HUNDRED STICKS OF DYNAMITE. AS SHE TURNED TO RUN FROM THE ROOM, THE DOOR WAS SLAMMED SHUT BY THE WIND. FRANTICALLY, SHE LOOKED AROUND THE ROOM AND DISCOVERED THREE LARGE CONTAINERS. SUSAN DASHED OVER AND QUICKLY READ THE LABEL ON EACH CONTAINER. THE FIRST ONE WAS A ONE HUNDRED GALLON CONTAINER FILLED WITH WATER. THE SECOND CONTAINER WAS FILLED WITH ONE HUNDRED POUNDS OF BAKING SODA WHICH COULD BE USED TO PUT OUT FIRES. THE THIRD ONE HUNDRED GALLON CONTAINER WAS FILLED WITH AN INERT GAS THAT ALSO COULD PUT OUT FIRES. SHE HAD ONLY ENOUGH TIME TO OPEN ONE CONTAINER BEFORE THE BURNING CEILING WOULD COLLAPSE ON THE CRATE OF DYNAMITE. SHE TORE THE TOP FROM ONE CONTAINER AND FIVE SECONDS LATER THE FIRE WAS COMPLETELY OUT. THE STATE OF MATTER SUSAN USED WAS 1378

*A. THE INERT GAS.
B. THE WATER.
C. THE BAKING SODA.

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THE STUDENT WILL RECALL THE PROPERTIES OF MATTER BY IDENTIFYING A PROPERTY WHEN GIVEN A LIST OF ALTERNATIVES. %10¤ 0214

CHOOSE THE CORRECT ANSWER. 1

OF THE FOLLOWING ITEMS, ONLY   IS A PROPERTY OF *ALL* MATTER. 1391

*A. TAKES UP SPACE
B. HAS COLOR
C. SMELLS BAD
D. IS HARD

OF THE FOLLOWING ITEMS ONLY   IS A PROPERTY OF *ALL* MATTER. 1392

A. BOUNCES
B. CAN BE SEEN
*C. HAS WEIGHT
D. IS WET

JIM READ THE LIST OF ITEMS AND SAW THAT ONLY   IS A PROPERTY OF *ALL* MATTER. 1393

[illegible]
B. IS SOFT
C. IS WHITE
*D. TAKES UP SPACE

ANN READ THE FOLLOWING LIST AND SAW THAT ONLY WAS A PROPERTY OF *ALL* MATTER. 1394
*A. MADE UP OF TINY PARTICLES
B. HAS FOUR CORNERS
C. MADE UP OF WATER
D. KEEPS ITS OWN SHAPE

OF THE FOLLOWING ITEMS, ONLY IS A PROPERTY OF *ALL* MATTER. 1395
A. TAKES A LONG TIME TO MOVE
*B. TAKES UP SPACE
C. HAS TWO ENDS
D. USES OXYGEN

OF THE FOLLOWING ITEMS, ONLY IS A PROPERTY OF *ALL* MATTER. 1396
*A. HAS WEIGHT
B. HAS TWO FEET
C. IS LONG
D. HAS HAIR

OF THE FOLLOWING ITEMS, ONLY IS A PROPERTY OF *ALL* MATTER. 1397
A. MADE OF WOOD
B. IS SLIPPERY
C. MADE OF BRICKS
*D. MADE UP OF TINY PARTICLES

JOYCE SAW THAT ON THE FOLLOWING LIST ONLY WAS A PROPERTY OF *ALL* MATTER 1398
A. MADE UP OF SMALL MARBLES
B. MADE UP OF TINY BRICKS
*C. MADE UP OF TINY PARTICLES
D. MADE UP OF TINY PINS

JEAN SAW THAT ON THE LIST GIVEN TO HER, ONLY WAS A PROPERTY OF *ALL* MATTER. 1399
A. HAS EYES
*B. HAS WEIGHT
C. HAS CLAWS
D. HAS SMOOTH EDGES

ANDREA SAW THAT ON THE FOLLOWING LIST ONLY WAS A PROPERTY OF *ALL* MATTER. 1400
A. TAKES UP A COUNTRY
B. TAKES UP A ROOM
C. TAKES UP A BUILDING
*D. TAKES UP SPACE

****

GIVEN A LIST OF STATEMENTS, THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE PROPERTIES OF MATTER BY IDENTIFYING THE STATEMENT WHICH APPLIES TO *ALL* MATTER. %8□ 0215

CHOOSE THE CORRECT ANSWER. 1

THE STATEMENT WHICH NAMES A PROPERTY THAT APPLIES TO *ALL* MATTER IS . 1401
A. JILL SAID THE PIE SMELLED
B. ANDREW EXCLAIMED THAT MOSS IS GREEN
*C. JIM SAID THAT HYDROGEN HAS WEIGHT
D. JOHN SAID THAT IRON IS HARD

HANK SAID THAT STATEMENT APPLIES TO *ALL* MATTER. 1402
*A. IRON IS MADE UP OF TINY PARTICLES
B. STEEL IS SHINY
C. BUTTER IS SOFT
D. SUGAR IS SWEET

THE STATEMENT APPLIES TO *ALL* MATTERO 1403
A. WATER IS WET
B. MILK IS WHITE
C. SYRUP IS SWEET
*D. WATER TAKES UP SPACE

WHY DOES THE STATEMENT, APPLY TO *ALL* MATTERO , ASKED THE TEACHER. 1404
A. WOOD BURNS
*B. TURPENTINE IS MADE UP OF TINY PARTICLES
C. CREAM IS WET
D. ROCKS ARE HARD

THE STATEMENT, APPLIES TO *ALL* MATTER. 1405
A. A BRICK IS HEAVY
B. A BRICK TAKES UP SPACE
C. SOME BRICKS ARE RED
D. BRICKS KEEP THEIR OWN SHAPE

THE STATEMENT, APPLIES TO *ALL* MATTER. 1407
A. HELIUM HAS A BAD SMELL
B. HELIUM IS COLORLESS
*C. HELIUM IS MADE UP OF TINY PARTICLES
D. HELIUM HAS NO TASTE

THE STATEMENT, APPLIES TO *ALL* GASES. 1409
A. THE OXYGEN COULD NOT BE SEEN.
B. THE OXYGEN HAD NO SMELL.
*C. THE OXYGEN TOOK UP ALL THE SPACE.
D. THE OXYGEN HELPED IN BURNING THE WOOD.

THE STATEMENT, APPLIES TO *ALL* MATTER. 1410
*A. HYDROGEN IS MADE UP OF TINY PARTICLES.
B. HYDROGEN HAS A BAD SMELL.
C. HYDROGEN IS NOT HARD.
D. HYDROGEN CAN,T BE SEEN.

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GIVEN A LIST OF SITUATIONS INVOLVING THREE CONDITIONS OF MOLECULAR ACTIVITY. THE STUDENT WILL SHOW HIS UNDERSTANDING OF MOLECULAR ACTIVITY BY SELECTING THE CORRECT CONDITION. %10¤ 0216

SELECT ONE OF THE THREE CONDITIONS FOR THE FOLLOWING SITUATIONS. 0060
A. MOLECULAR ACTIVITY HAS STAYED THE SAME.
B. MOLECULAR ACTIVITY HAS INCREASED.

  C. MOLECULAR ACTIVITY HAS DECREASED.

A STEEL PIPE HAS BEEN HIT WITH A HAMMER FOR 20 MINUTES. *B 1411

A BALLOON EXPANDS AFTER SITTING IN THE SUN. *B 1412

A TRAY OF WATER FREEZES. *C 1413

A TABLE IS MOVED FROM THE FRONT OF THE ROOM TO THE BACK. *A 1414

A FINGER RING BECOMES TIGHTER IN THE WINTER. *C 1415

TELEPHONE WIRES SAG IN THE SUMMER. *B 1416

RUBBING YOUR HANDS TOGETHER TO GET THEM WARM. *B 1417

THE GAP IN A RAILROAD EXPANSION JOINT WIDENS. *C 1418

A SIDE WALK BUCKLES IN THE SUMMER. *B 1419

THE MERCURY IN A THERMOMETER DROPS. *C 1420

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GIVEN THE CHARACTERISTICS OF THE THREE STATE OF MATTER, THE
STUDENT WILL DISTINGUISH BETWEEN KNOWN MATTER BY CORRECTLY
IDENTIFYING ITS NATURAL STATE. %10□ 0223

DIRECTIONS - READ THE FOLLOWING PARAGRAPH, THEN PICK THE CORRECT
STATE OF EACH MATTER. INDICATE YOUR ANSWER BY THE FOLLOWING KEY. 0064
  A. SOLID
  B. LIQUID
  C. GASEOUS

THERE ARE THREE STATES OF MATTER, SOLID, LIQUID, AND GASES. A SOLID IS DEFINED AS MATTER THAT RETAINS ITS OWN SHAPE. LIQUID TAKES ON THE SHAPE OF ITS CONTAINER. A GAS ALSO TAKES ON THE SHAPE OF ITS CONTAINER, BUT THE MOLECULES SPREAD OUT AND FILL UP THE *WHOLE* CONTAINER.

ICE *A 1447

OXYGEN *C 1448

MERCURY *B 1449

STEAM *C 1450

WATER *B 1451

CLAY *A 1452

SNOW *A 1453

GLASS *A 1454

HELIUM *C 1455

GASOLINE *B 1456

****

THE STUDENT WILL APPLY HIS UNDERSTANDING OF THE EXPANSION OF CHARACTERISTICS OF STATES OF MATTER BY IDENTIFYING THE STATE IN GIVEN EXPERIMENTS. %11□ 0226

A BRASS BALL ONE INCH ACROSS WILL PASS THROUGH A RING WHICH IS A LITTLE MORE THAN ONE INCH ACROSS. THE BALL IS HELD OVER A FLAME, UNTIL VERY HOT. 0111

IF THE BALL IS PUT THROUGH THE RING AGAIN IT WILL PROBABLY 1468
  A. GO THROUGH THE RING.
 *B. NOT FIT THROUGH THE RING.
  C. GO THROUGH MORE EASILY THAN BEFORE IT WAS HEATED.

THE FLAME CAUSED THE MOLECULES OF THE BRASS BALL TO 1469
  A. MOVE CLOSER TOGETHER.
  B. TO DECREASE IN MOVEMENT.
 *C. MOVE FURTHER APART.
  D. GET LARGER.

THE EXPERIMENT PROVED ALL OF THE FOLLOWING *EXCEPT* 1470
  A. SOLIDS EXPAND WHEN HEATED.
  B. BRASS MOLECULES MOVE FURTHER APART WHEN HEATED.
 *C. SOLIDS BUT NOT LIQUIDS EXPAND WHEN HEATED.
  D. MOLECULAR ACTIVITY IS INCREASED BY HEAT.

FROM THE DIAGRAM ONE CAN ASSUME THAT 1471
  A. THE LIQUIDS MOLECULAR MOVEMENT DECREASED.
 *B. THE LIQUIDS ALL EXPANDED.
  C. THE MOLECULAR MOVEMENT INCREASED BUT THE TEMPERATURE DECREASED.

THE EXPERIMENT PROVED EVERYTHING *EXCEPT* 1472
  A. LIQUIDS EXPAND IN DIFFERENT AMOUNTS.
  B. MOLECULAR MOVEMENT INCREASED AS HEAT WAS APPLIED.
  C. ALCOHOL EXPANDS MORE THAN MERCURY.
 *D. ALCOHOL HAS THE GREATEST AMOUNT OF EXPANSION OF *ANY* GIVEN LIQUID.

THE BALLOON IS FILLED WITH A 1473
  A. LIQUID.
 *B. GAS.
  C. SOLID.

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THE STUDENT WILL BE ABLE TO DEMONSTRATE A KNOWLEDGE OF THE CHARACTERISTICS OF STATES OF MATTER BY DISTINGUISHING THE STATE THAT HAS A PARTICULAR CHARACTERISTIC. %3□ 0233

CHOOSE THE CORRECT ANSWER. 1

ELASTICITY, DUE TO THE GREAT MOVEMENT OF MOLECULES, IS A CHARACTERISTIC OF WHICH STATE OF MATTERO 1586
  A. SOLID
  B. LIQUID
 *C. GAS

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THE STATE OF MATTER THAT HAS A GREATER DENSITY OF MOLECULES IS          1587
WHICH ONEO
 *A. SOLID
  B. LIQUID
  C. GAS

THE STATE OF MATTER THAT TAKES THE SHAPE OF ITS CONTAINER IS            1588
WHICH ONEO
  A. SOLID
 *B. LIQUID
  C. GAS


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GIVEN INFORMATION ABOUT MATTER OF DIFFERENT DENSITIES, THE              0240
STUDENT WILL ANALYZE AND SELECT A CORRECT INFERENCE FROM IT. %1□

CHOOSE THE CORRECT ANSWER.                                                 1

WHAT INFERENCE CAN BE MADE FROM THE FOLLOWING STATEMENTS -              1602
%A□ COLD AIR IS MORE DENSE THAN WARM AIR.
%B□ MATTER OF GREATER DENSITY WILL TEND TO DISPLACE MATTER OF
LESSER DENSITY.
  A. WARM AIR WILL MOVE COLD AIR
 *B. COLD AIR WILL MOVE WARM AIR
  C. COLD AIR AND WARM AIR HAVE NO EFFECT UPON THE OTHER


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THE STUDENT CAN IDENTIFY THE COMPOSITION OF SUBSTANCES BY               0267
SELECTING WORD EQUATIONS WHICH DESCRIBE THE DECOMPOSITION OR
SYNTHESIS OF SUBSTANCES.  %5□

CHOOSE THE CORRECT ANSWER.                                                 1

WHICH OF THE FOLLOWING WORD EQUATIONS DESCRIBES THE                  2400509
*DECOMPOSITION* OF MERCURIC OXIDEO                                   2400509
 *A. MERCURIC OXIDE ——> MERCURY & OXYGEN                             2400509
  B. MERCURY & OXYGEN ——> MERCURIC OXIDE                             2400509
  C. MERCURY ——> MERCURIC OXIDE & OXYGEN                             2400509

WHICH WORD EQUATION DESCRIBES THE *SYNTHESIS* OF IRON OXIDEO         2400510
 *A. IRON & OXYGEN ——> IRON OXIDE                                    2400510
  B. IRON & OXYGEN & CARBON ——> IRON OXIDE                           2400510
  C. IRON OXIDE ——> IRON & OXYGEN                                    2400510

WHICH WORD EQUATION DESCRIBES THE *DECOMPOSITION* OF WATERO          2400511
  A. WATER ——> CARBON & HYDROGEN & OXYGEN                            2400511
 *B. WATER ——> HYDROGEN & OXYGEN                                     2400511
  C. HYDROGEN & OXYGEN & CARBON ——> WATER                            2400511

WHICH WORD EQUATION DESCRIBES THE FORMATION OF CALCIUM CARBONATEO    2400512
  A. CALCIUM HYDROXIDE & WATER ——> CALCIUM CARBONATE & CARBON        2400512
     DIOXIDE                                                         2400512
  B. CALCIUM CARBONATE & WATER ——> CALCIUM HYDROXIDE & CARBON        2400512
     DIOXIDE                                                         2400512
 *C. CALCIUM HYDROXIDE & CARBON DIOXIDE ——> CALCIUM CARBONATE &      2400512
     WATER
```

WHICH WORD EQUATION DESCRIBES THE TEST FOR TABLE SALTO 2400513
A. SILVER CHLORIDE & SODIUM NITRATE → SODIUM CHLORIDE & 2400513
SILVER NITRATE 2400513
*B. SODIUM CHLORIDE & SILVER NITRATE → SILVER CHLORIDE & 2400513
SODIUM NITRATE 2400513
C. SODIUM CHLORIDE & SILVER CHLORIDE → SODIUM NITRATE & 2400513
SILVER NITRATE 2400513

****

COLOR

THE STUDENT CAN DEMONSTRATE KNOWLEDGE OF THE SPECTRUM BY RECALLING INFORMATION RELATING TO WAVES PER INCH OF COLOR AND VISIBILITY. %5□ 0199

CHOOSE THE CORRECT ANSWER. 1

THE HIGHEST FREQUENCY LIGHT WAVE ON THE VISIBLE SPECTRUM IS 1292
A. BLUE.
B. YELLOW.
C. RED.
*D. VIOLET.

WHICH OF THE FOLLOWING IS *NOT* SEEN BY THE NAKED EYE WHEN WHITE LIGHT PASSES THROUGH A PRISMO 1294
*A. INFRARED
B. YELLOW
C. ORANGE
D. GREEN

THE RETINA OF THE EYE RECEIVES AND INTERPRETS COLOR. WHICH OF THE FOLLOWING CANNOT BE SEEN WHEN SUNLIGHT IS PASSED THROUGH A PRISMO 1295
A. RED
*B. ULTRAVIOLET LIGHT
C. ORANGE
D. YELLOW

****

THE STUDENT CAN SHOW HIS UNDERSTANDING OF THE DOPPLER EFFECT BY IDENTIFYING CHANGES IN COLOR AND/OR WAVE LENGTH OF LIGHT AS STARS MOVE IN THE GALAXY. %3□ 0200

CHOOSE THE CORRECT ANSWER. 1

AS A STAR MOVES TOWARD THE EARTH A COLOR CHANGE SEEMS TO OCCUR BECAUSE 1296
A. THE STAR BECOMES COOLER.
B. THE STAR BECOMES HOTTER.
C. PARTICLES IN THE AIR REFLECT THE LIGHT.
*D. LIGHT WAVES ARE CROWDED TOGETHER.

WHEN LIGHT WAVES ARE CROWDED TOGETHER AS A STAR MOVES TOWARD THE EARTH WE COULD EXPECT 1297
A. THE SURFACE TEMPERATURE OF THE STAR TO INCREASE.
B. THE SURFACE TEMPERATURE OF THE STAR TO DECREASE.
*C. THE WAVE LENGTH OF LIGHT TO DECREASE.
D. THE FREQUENCY OF LIGHT WAVES TO BECOME LOWER.

WHAT IS THE EFFECT OF A STAR MOVING AWAY FROM EARTH AS DETERMINED BY A SPECTROSCOPEO 1298
A. THE FREQUENCY OF LIGHT BECOMES HIGHER
B. THERE IS A COLOR SHIFT TO THE VIOLET END OF THE SPECTRUM
C. THERE IS NO NOTICEABLE EFFECT
*D. THE FREQUENCY OF LIGHT BECOMES LOWER WITH A SHIFT TO RED

****

EARTH SCIENCE

THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF THE GEOLOGICAL CLASSIFICATIONS OF ROCKS BY IDENTIFYING THE CATEGORY OF SEVERAL COMMON ROCKS. %9□ 0074

CHOOSE THE CORRECT CATEGORY IN WHICH EACH ROCK WOULD BE CLASSIFIED. 0003
A. IGNEOUS
B. SEDIMENTARY
C. METAMORPHIC

BLACK MARBLE BELONGS TO WHAT GEOLOGICAL GROUPO *C 0299

PUMICE BELONGS TO WHAT GEOLOGICAL GROUPO *A 0300

SANDSTONE BELONGS TO WHAT GEOLOGICAL GROUPO *B 0301

LIMESTONE BELONGS TO WHAT GEOLOGICAL GROUPO *B 0302

BASALT BELONGS TO WHAT GEOLOGICAL GROUPO *A 0303

SHALE BELONGS TO WHAT GEOLOGICAL GROUPO *B 0304

QUARTZ BELONGS TO WHAT GEOLOGICAL GROUPO *C 0305

LAVA BELONGS TO WHAT GEOLOGICAL GROUPO *A 0306

COAL BELONGS TO WHAT GEOLOGICAL GROUPO *B 0307

****

AFTER STUDYING THE DEFINITIONS OF THE LAND SURFACE AND THE OCEAN FLOOR, THE STUDENT CAN APPLY THIS KNOWLEDGE BY CHOOSING WHETHER A GIVEN CONDITION IS CHARACTERISTIC OF THE OCEAN FLOOR, THE LAND SURFACE, OR BOTH. %4□ 0129

CHOOSE THE CORRECT ANSWER. 1

MINERAL PRODUCTS CAN BE FOUND 2400477

A. ONLY IN THE OCEANS FLOOR. 2400477
B. ONLY IN THE LANDS SURFACE. 2400477
*C. BOTH OF THE ABOVE. 2400477

THE FORMATIONS WHICH SHOW SIGNS OF WIND AND SOIL EROSION ARE 2400478
FORMED ON 2400478
A. THE FLOOR OF THE OCEAN. 2400478
*B. THE SURFACE OF THE LAND. 2400478
C. BOTH OF THE ABOVE. 2400478

IF WE DESCRIBED A SURFACE,S CONDITION AS HAVING BASINS, TRENCHES, 0479
AND SLOPES, WE WOULD BE DESCRIBING 2400479
A. THE FLOOR OF THE OCEAN. 2400479
B. THE SURFACE OF THE LAND. 2400479
*C. BOTH OF THE ABOVE. 2400479

****

GIVEN INFORMATION ON OCEANOGRAPHY THE STUDENT WILL APPLY HIS 0132
UNDERSTANDING OF EROSION BY SELECTING THE LOGICAL EXPLANATION
FOR GIVEN PHENOMENON. %1n

READ THE FOLLOWING STATEMENT. THEN CHOOSE THE LOGICAL EXPLANA- 0089
TION FOR THIS OCCURENCE FROM THE FOLLOWING LIST.

THE OCEAN FLOOR IS VERY SIMILAR TO THE SURFACE OF THE LAND, ONLY 0487
THE OCEAN FLOOR IS COVERED WITH WATER. CONTRARY TO THIS
SIMILARITY, EROSION HAS ALTERED LAND FEATURES TO A GREATER DEGREE
THAN THE OCEAN FLOOR.

THE REASONS FOR THIS BEING JUSTIFIED ARE 2400487
A. THE EROSION FORCES OF WIND AND SUN ARE WASHED AWAY ON THE 2400487
FLOOR OF THE OCEAN LEVELING ITS SURFACE. THIS MAKES THE 2400487
EFFECTS OF EROSION UNNOTICEABLE. 2400487
B. THE OCEAN FLOOR IS FREE FROM ANY FORCES OF EROSION, AND, 2400487
THEREFORE, HAS A NATURAL PROTECTION AGAINST ALTERATION OF 2400487
ITS SURFACE FEATURES. 2400487
*C. THE EROSION FORCES OF WIND, SUN, AND FALLING WATER ARE ONLY 2400487
CONNECTED WITH LAND EROSION, WHEREAS, THE SEA HAS TO ONLY 2400487
CONTEND WITH WATER EROSION. 2400487

****

THE STUDENT CAN RECALL DEFINITIONS OF WEATHERING AND EROSION BY 0133
SELECTING THEM FROM A LIST. %5n

CHOOSE THE CORRECT ANSWER. 1

WEATHERING IS CAUSED BY 2400488
A. WATER AND WIND. 2400488
B. HEAT, COLD AND FREEZING WATER. 2400488
C. PLANTS. 2400488
*D. BOTH B AND C. 2400488

EROSION IS CAUSED BY 2400489
A. HEAT, COLD AND FREEZING WATER. 2400489
*B. WATER AND WIND. 2400489
C. PLANTS. 2400489

```
WEATHERING CAN BE DEFINED AS THE                                         2400490
 *A. BREAKING DOWN OF ROCK.                                              2400490
  B. WEARING AWAY OF THE EARTH,S SURFACE.                                   0490
  C. CARRYING AWAY OF THE EARTH,S SURFACE.                                  0490

EROSION CAN BE DEFINED AS THE                                            2400491
  A. BREAKING DOWN OF ROCK.                                              2400491
  B. WEARING AWAY OF THE EARTH,S SURFACE.                                   0491
  C. CARRYING AWAY OF THE EARTH,S SURFACE.                                  0491
 *D. BOTH B AND C.                                                       2400491

THE DOME SHAPE OF A MOUNTAIN IS PROBABLY CAUSED BY                       2400492
  A. WEATHERING.                                                         2400492
  B. EROSION.                                                            2400492
 *C. BOTH A AND B.                                                       2400492
  D. NONE OF THE ABOVE.                                                  2400492

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GIVEN PICTURES OF GEOLOGICAL FORMATIONS, THE STUDENT CAN APPLY              0134
THE DEFINITIONS OF EROSION AND WEATHERING TO PREDICT THEIR
PROBABLE CAUSES.  %5□
%NEED DIAGRAMS OF THE FOLLOWING□

STUDY THE FOLLOWING PICTURES AND THEN ANSWER THE QUESTIONS WHICH            0090
FOLLOW.
PICTURE        A  -  RIVER VALLEY
               B  -  DESERT
               C  -  CRACKED ROCK %NO PLANTS ON OR NEAR ROCK□
               D  -  GULLY
               E  -  LICHEN COVERED ROCK

IN PICTURE  A , PROBABLY THE MAIN FORCE WHICH SHAPED THIS LAND           2400493
WAS                                                                      2400493
  A. WIND.                                                               2400493
  B. PLANT GROWTH.                                                       2400493
 *C. WATER.                                                              2400493
  D. ICE.                                                                2400493

IN PICTURE  B , PROBABLY THE MAIN FORCE WHICH SHAPED THIS LAND           2400494
WAS                                                                      2400494
  A. ICE.                                                                2400494
 *B. WIND.                                                               2400494
  C. PLANT GROWTH.                                                       2400494
  D. WATER.                                                              2400494

IN PICTURE  C , PROBABLY THE MAIN FORCE WHICH CRACKED THIS ROCK          2400495
WAS                                                                      2400495
 *A. FREEZING WATER.                                                     2400495
  B. PLANT GROWTH.                                                       2400495
  C. WIND.                                                               2400495
  D. A SMALL ANIMAL.                                                     2400495

IN PICTURE  D , PROBABLY THE MAIN FORCE WHICH CHANGED THIS LAND          2400496
WAS                                                                      2400496
  A. WIND.                                                               2400496
 *B. PLANT GROWTH.                                                       2400496
  C. ICE.                                                                2400496
  D. WATER.                                                              2400496

IN PICTURE  E , PROBABLY THE MAIN FORCE WHICH CHANGED THIS ROCK          2400497
WAS                                                                      2400497
  A. WATER.                                                              2400497
  B. PLANT GROWTH.                                                       2400497
  C. WIND.                                                               2400497
 *D. ICE.                                                                2400497

************************************************************************************

THE STUDENT CAN APPLY INFORMATION ABOUT SEDIMENTARY ROCK                    0135
FORMATION BY CHOOSING FROM A LIST, THE PROBABLE CAUSES AND
EFFECTS OF SEDIMENTATION IN SITUATIONS.  %3□

CHOOSE THE CORRECT ANSWER.                                                     1

THERE ARE FOUR LAYERS OF SEDIMENTARY ROCK.  LAYER W IS ON THE            2400498
BOTTOM. LAYER X IS ON TOP OF W, Y IS ON TOP OF X AND Z IS THE TOP        2400498
MOST LAYER.  WHICH LAYER IS THE OLDEST□                                  2400498
 *A. LAYER W                                                             2400498
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  B. LAYER X                                                        2400498
  C. LAYER Y                                                        2400498
  D. LAYER Z                                                        2400498

SOME SEDIMENTARY ROCK IS MADE OF VERY FINE SEDIMENTS.  WHAT KIND    2400500
OF RIVER BROUGHT THE FINE SEDIMENTSO                                2400500
 *A. ONE THAT WAS MOVING SLOWLY.                                    2400500
  B. ONE THAT WAS MOVING MODERATELY.                                2400500
  C. ONE THAT WAS MOVING FAST.                                      2400500


************************************************************************

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF EARTHQUAKES BY        0136
SELECTING THE CAUSES, LOCATIONS, AND SIGNIFICANCE OF THEIR
OCCURRENCE.  %5□

CHOOSE THE CORRECT ANSWER.                                                1

WHAT IS THE MAIN CAUSE FOR AN EARTHQUAKEO
 *A. ROCK LAYERS SHIFTING TO A NEW POSITION.                        2400501
  B. THE CORE OF THE EARTH PUSHING ON THE MANTLE.                   2400501
  C. SOUND WAVES.                                                   2400501

IN WHAT LAYER OF THE EARTH DO EARTHQUAKES OCCURO                    2400502
  A. CORE                                                           2400502
  B. MANTLE                                                         2400502
 *C. CRUST                                                          2400502

SEISMOGRAPHS MEASURE EARTHQUAKE WAVES WHICH TRAVEL                   2400503
  A. AROUND THE EARTH.                                              2400503
 *B. THROUGH THE EARTH.                                             2400503
  C. ALONG THE SUFACE OF THE EARTHS CRUST.                          2400503

SEISMOGRAPHS ARE IMPORTANT BECAUSE THEY                             2400504
 *A. TELL US ABOUT THE INSIDE OF THE EARTH.                         2400504
  B. PREDICT WHEN EARTHQUAKES WILL OCCUR.                           2400504
  C. PREDICT WHERE EARTHQUAKES WILL OCCUR.                             0504

WHERE WOULD BE THE SAFEST PLACE TO BUILD A HOUSE IN AN EARTHQUAKE   2400505
BELTO                                                               2400505
  A. AT THE SEACOAST                                                2400505
 *B. ON AN INLAND PLAIN                                             2400505
  C. IN A VALLEY                                                    2400505
  D. ON A HILLSIDE                                                  2400505


************************************************************************

THE STUDENT WILL SHOW HIS UNDERSTANDING OF THE ROCK CYCLE BY           0149
ANSWERING CORRECTLY A SERIES OF QUESTIONS CONCERNING THE
DIFFERENCES AND RELATIONSHIPS BETWEEN THE ROCKS.  %8□

CHOOSE THE CORRECT ANSWER.                                                1

SINCE WE HAVE NO WITNESSES TO THE BEGINNING OF THE EARTH, WE           0951
CANNOT BE SURE OF WHAT KINDS OF ROCK WERE FIRST FORMED.  USING
WHAT YOU KNOW ABOUT THE CONDITIONS UNDER WHICH ROCK FORMS, WHAT
TYPE OF ROCK WAS PROPABLY THE FIRST KIND FORMED ON EARTHO
 *A. IGNEOUS
  B. SEDIMENTARY
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C. METAMORPHIC
D. A AND C

IN THE ROCK CYCLE. WHAT IS THE RELATIONSHIP BETWEEN MAGMA AND IGNEOUS ROCK0 0952
A. MAGMA CONTAINS ALL THE MINERALS FOUND IN IGNEOUS ROCK.
B. MAGMA AND IGNEOUS ROCK ARE BOTH FOUND UNDERGROUND.
*C. MAGMA COOLS AND HARDENS INTO IGNEOUS ROCK.
D. MAGMA AND IGNEOUS ROCK HAVE TREMENDOUS PRESSURE ON THEM.

WHICH OF THE FOLLOWING IS *NOT* AN AGENT OF WEATHERING0 0953
A. WATER
*B. HEAT
C. WIND
D. ICE

WHILE DRIVING IN A HILLY AREA, YOU COME UPON A VALLEY WHOSE SIDES FORM A VALLEY. YOU NOTICE HOWEVER THAT THERE IS *NO* STREAM IN THE BOTTOM OF THE VALLEY. YOU HIKE DOWN TO THE BOTTOM TO TAKE A CLOSER LOOK. YOU DISCOVER SAND, PEBBLES, AND LARGE BOULDERS AT THE BOTTOM OF THE VALLEY. THE PEBBLES AND BOULDERS ARE MADE OF GRANITE BUT THE VALLEY WALLS ARE MADE OF LIMESTONE. THE VALLEY IS A RESULT OF 0954
A. GLACIAL EROSION.
B. TEMPERATURE VARIANCE.
C. EARTHQUAKE ACTIVITY.
*D. STREAM EROSION.

THE DEPOSITION OF THE SAND, PEBBLES AND LARGE BOULDERS UPON LITHIFICATION WILL BECOME WHAT *TYPE* OF ROCK0 0955
*A. SEDIMENTARY
B. IGNEOUS
C. METAMORPHIC

OF THE TWO TYPES OF WEATHERING, WHICH TYPE PLAYED A GREATER PART IN CREATING THE VALLEY AND DEPOSITING THE SEDIMENT0 0956
A. CHEMICAL WEATHERING BECAUSE THE SEDIMENTS WERE SPLIT ORIGINALLY FROM A SOLID CLIFF.
B. MECHANICAL WEATHERING BECAUSE ABRASION SMOOTHED THE SEDIMENT SHAPE.
C. CHEMICAL WEATHERING BECAUSE THE STREAM WHICH CUT THE VALLEY WAS REALLY H_2CO_3.
*D. MECHANICAL WEATHERING BECAUSE ABRASION CUT THE VALLEY AND THE STREAM DEPOSITED THE SEDIMENTS.

IN THE ROCK CYCLE, WHAT IS THE RELATIONSHIP BETWEEN IGNEOUS AND SEDIMENTARY ROCKS0 0957
A. IGNEOUS ROCKS MELT CAUSING THE HEAVY CRYSTALS TO SETTLE OUT AND COOL TO FORM SEDIMENTARY ROCKS.
*B. IGNEOUS ROCKS WEATHER, ARE DEPOSITED BY WATER, WIND, OR ICE, ARE LITHIFICATED AND FORM SEDIMENTARY ROCKS.
C. IGNEOUS ROCKS FREEZE, CRACK APART, ARE SOLIDIFIED, AND FORM SEDIMENTARY ROCKS.
D. IGNEOUS ROCKS DROP TO THE BOTTOM OF THE SEA, BECOME WATER LOGGED AND ARE CALLED SEDIMENTARY ROCKS.

YOUR LITTLE BROTHER FINDS A BOULDER WHICH SEEMS TO BE MADE OF SANDSTONE. BUT WHEN LOOKING AT IT YOU NOTICE A 4 INCH LAYER ABOUT IN THE MIDDLE THAT IS DIFFERENT FROM THE OTHER LAYERS IN THE BOULDER. THIS MIDDLE LAYER IS OF THE SAME COLOR AND MATERIAL 0958

AS THE REMAINDER OF THE BOULDER *BUT* YOU CANNOT PICK OUT THE INDIVIDUAL GRAINS OF SAND IN THIS LAYER. WHAT KIND OF ROCK IS THE MIDDLE LAYERO

A. SANDSTONE WITH TINY GRAINS
B. MARBLE WITH SAND MIXED IN
*C. PURE QUARTZITE
D. THE SANDSTONE,S ORIGINAL GRANITE

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF THE USE OF THE VARIOUS MINERAL TESTING TECHNIQUES BY JUDGING THE SUITABILITY OF A TECHNIQUE IN GIVEN SITUATIONS. %3□ 0151

CHOOSE THE CORRECT ANSWER. 1

YOU HAVE BEEN GIVEN A BOX OF UNIDENTIFIED MINERALS AND ARE TOLD TO IDENTIFY THEM. WHICH OF THE FOLLOWING WOULD *NOT* HELP YOUO 0997

A. MOHS HARDNESS SCALE
B. LUSTER OBSERVATION
C. STREAK TEST
*D. RICHTER SCALE

TWO MINERAL SPECIMENS ARE ALIKE IN COLOR, WEIGHT, STREAK COLOR, CLEAVAGE AND LUSTER. ARE THE SPECIMENS THE SAME MINERALO 0998

*A. POSSIBLY -- TRY HARDNESS TEST
B. DEFINITELY -- HARDNESS CAN VARY IN SPECIMENS
C. POSSIBLY -- TRY CRACKING SPECIMENS
D. DEFINITELY -- STREAK TEST IS CONCLUSIVE

THE COLOR TEST IS OF *LEAST* VALUE IN DETERMINING A MINERALS IDENTITY BECAUSE MINERAL COLOR 0999

A. CANNOT ALWAYS BE DETERMINED.
*B. VARIES IN SPECIMENS DUE TO IMPURITIES.
C. CHANGES WITH WEATHER CONDITIONS.
D. CAN BE SHARED BY MANY MINERALS.

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF THE USE OF THE MINERAL IDENTITY TESTS BY CHOOSING THE CHARACTERISTIC A TEST TESTS FROM A LIST OF ALTERNATIVES. %2□ 0152

CHOOSE THE CORRECT ANSWER. 1

SPLITTING A SPECIMEN CAN BE HELPFUL IN IDENTIFYING A MINERAL. WHAT CHARACTERISTIC IS BEING TESTED IN THIS TESTO 1000

*A. CLEAVAGE
B. HARDNESS
C. STREAK
D. FORM

HCL IS DROPPED ON A SPECIMEN. BUBBLES FORM WHERE THE DROP WAS PLACED. WHAT CAN YOU CONCLUDEO 1001

A. THE MINERAL HAS NAC1 IN IT.
B. THE MINERAL SHOULD BE TESTED FURTHER.
C. THE MINERAL IS DISSOLVING.
*D. THE MINERAL HAS $CACO_3$ IN IT.

* * *

THE STUDENT WILL SHOW HIS UNDERSTANDING OF MAGMA AND LAVA BY IDENTIFYING THE DIFFERENCES BETWEEN THEM AND THE CONDITIONS FOR THEIR EXISTENCE. %3¤ 0157

CHOOSE THE CORRECT ANSWER. 1

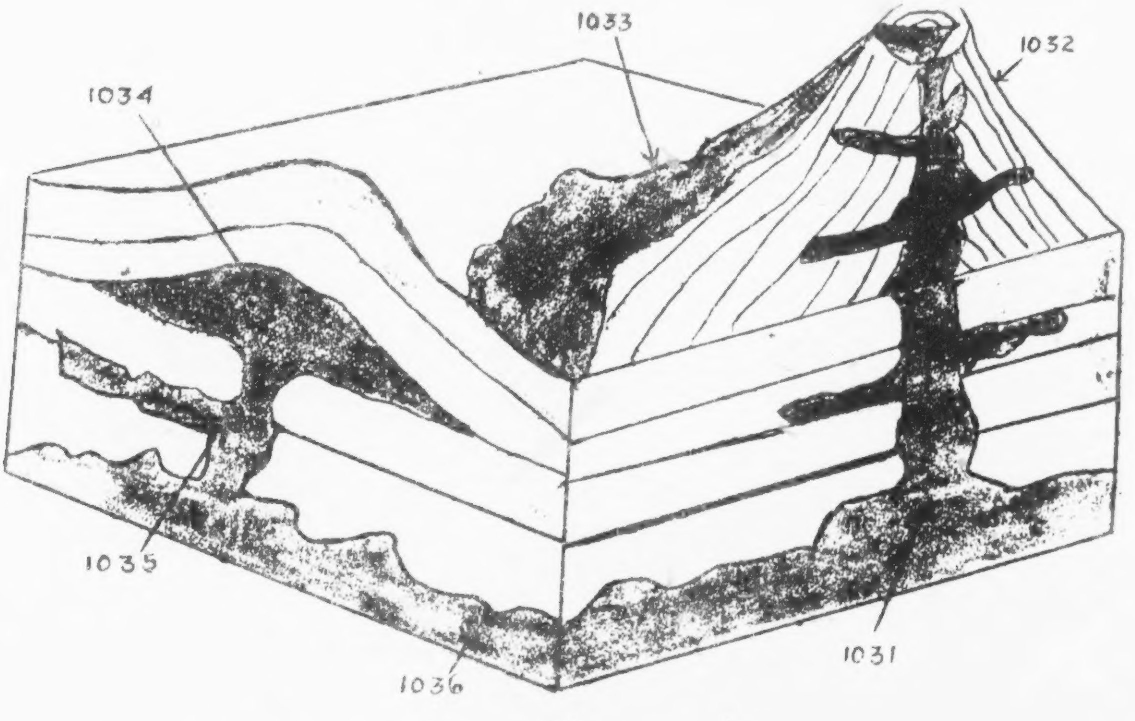
THE DIFFERENCE BETWEEN MAGMA AND LAVA IS 1028
- A. MAGMA IS PLASTIC ROCK AND LAVA IS LIQUID ROCK.
- *B. MAGMA IS FOUND UNDERGROUND AND LAVA IS FOUND AT THE SURFACE.
- C. MAGMA IS FOUND AT THE SURFACE AND LAVA IS FOUND UNDERGROUND.
- D. MAGMA IS LIQUID ROCK AND LAVA IS PLASTIC ROCK.

WHERE MAGMA ORIGINATES; THE TEMPERATURE IS HIGH ENOUGH TO MELT MOST ROCK AND YET VERY LITTLE MAGMA IS PRODUCED HERE. WHYO 1029
- *A. THE PRESSURE IS TOO GREAT TO ALLOW LIQUID FORMATION.
- B. THE HEAT IS *NOT* GREAT ENOUGH TO MELT MAGMA ROCK.
- C. THERE IS *NOT* ENOUGH WATER AT THIS DEPTH TO FORM MAGMA.
- D. THERE IS TOO MUCH HEAT CAUSING THE ROCK TO BECOME A GAS.

WHICH LAYER IN THE EARTH IS RESPONSIBLE FOR MAGMA FORMATIONO 1030
- A. INNER CORE
- B. OUTER CORE
- C. CRUST
- *D. MANTLE

* * *

THE STUDENT WILL SHOW HIS KNOWLEDGE OF THE PARTS OF A VOLCANO BY IDENTIFYING EACH IN A MODEL. %6¤ 0158



THE ABOVE IS A CROSS SECTIONAL AREA FROM A VOLCANIC REGION. NOTICE THE NUMBERED AREAS. CHOOSE THE NAME FOR EACH NUMBERED AREA FROM THE POSSIBLE NAMES BELOW. 0032

A. DIKE
B. PLUG
C. MOLT
D. VOLCANO
E. BATHOLITH
F. SILL
G. RESERVOIS
H. GASES
I. LAVA FLOW
J. LACOLITH

AREA 1 *A 1031

AREA 2 *D 1032

AREA 3 *I 1033

AREA 4 *J 1034

AREA 5 *F 1035

AREA 6 *E 1036

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF THE DIFFERENCES IN VARIOUS VOLCANIC ERUPTIONS BY MATCHING AN ERUPTION WITH ITS CHARACTERISTICS. %7□ 0159

THE FOLLOWING IS A LIST OF SEVERAL VOLCANIC ERUPTIONS. BENEATH THIS LIST IS ANOTHER LIST OF THE PARTS OF AN ERUPTION WHICH MAKE CERTAIN ERUPTIONS IMPORTANT. MATCH THE NAME OF THE ERUPTION WITH THE PART WHICH MAKES IT IMPORTANT. 0033

A. FIERY CLOUD
B. CINDER CONE
C. EXPLOSIVE VOLCANO
D. SHIELD
E. GAS AND DUST CLOUDS

KRAKATOA, 1883 *C 1037

VESUVIUS, 79 AD *E 1038

PARICUTIN, 1943 *B 1039

HAWAII ISLAND,S VOLCANOES *D 1040

MOUNT FIJIYAMA *B 1041

MT PELEE *A 1042

SURTSEY, 1963 *C 1043

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF EARTHQUAKES BY 0161

IDENTIFYING THE PARTS OF EARTHQUAKE STUDY. %9Π

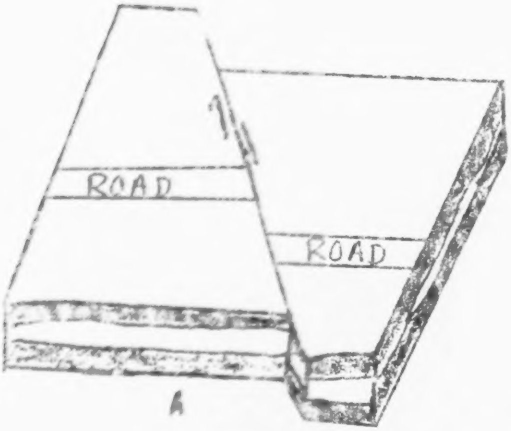
CHOOSE THE CORRECT ANSWER. 1

MOVEMENT ALONG A FAULT IS CALLED A%NΠ 1054
*A. EARTHQUAKE.
B. NONCONFORMITY.
C. JOINT.
D. ANTICLINE.

A FAULT CAN BE DEFINED AS A%NΠ 1055
A. AREA OF UNCOMFORMITY IN THE CRUST.
B. LOCATION OF VOCANIC ACTIVITY IN THE CRUST.
C. PLACE WHERE ROCK LAYERS BEND.
*D. SECTION OF WEAKNESS IN THE CRUST.

EARTHQUAKES VARY IN INTENSITY. THEIR STRENGTH HAS BEEN PLOTTED ON A STANDARD SCALE NAMED AFTER 1056
A. ROSSI.
*B. RICHTER.
C. ROBERTS.
D. RICHARDS.

EARTHQUAKES HAVE BEEN STUDIED BY GEOLOGISTS AND THE SHEAR WAVES AND PRESSURE WAVES WHICH ARE CAUSED BY EARTHQUAKES HAVE BEEN CLOCKED ON SEISMOGRAPHS. OF WHAT PURPOSE IS THIS STUDYO 1058
A. TO PREDICT WHEN EARTHQUAKES WILL OCCUR.
B. TO DETERMINE THE AMOUNT OF ENERGY RELEASED.
*C. TO DISCOVER THE COMPOSITION OF THE EARTHS LAYERS.
D. TO PREDICT PRODUCTION OF A SEISMIC SEA WAVE.



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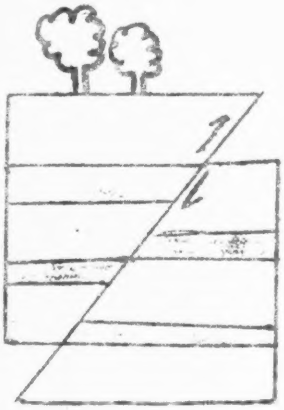

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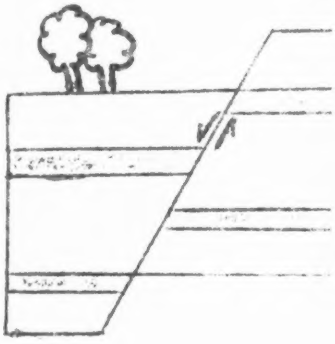


C

THE ABOVE ARE ILLUSTRATIONS OF THE 3 TYPES OF FAULTS. ANSWER THE FOLLOWING QUESTIONS. 0035

WHICH OF THE ABOVE IS A NORMAL FAULTO *B 1059

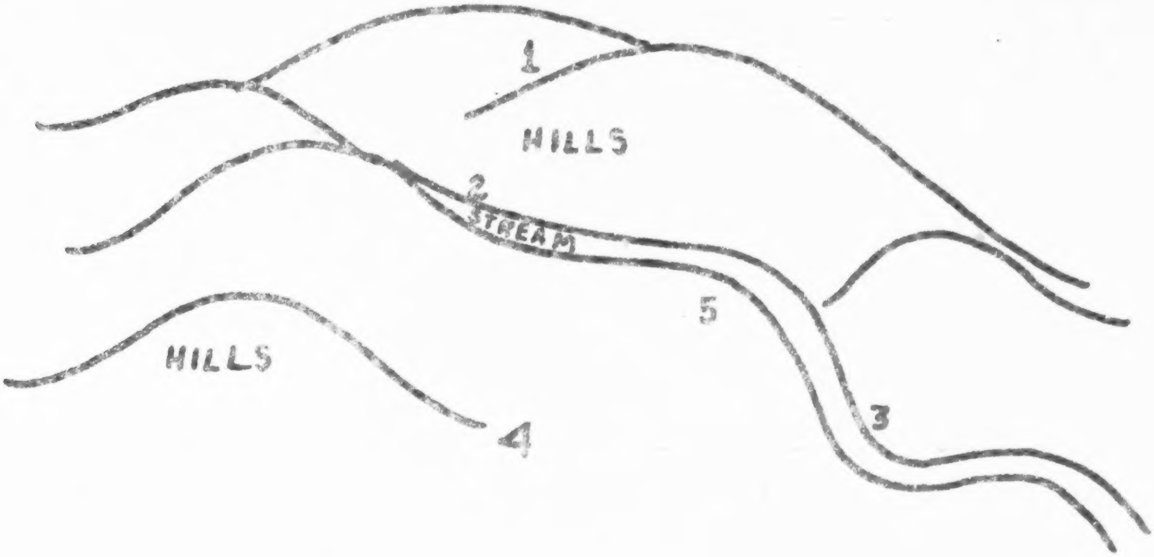
WHICH OF THE ABOVE IS A STRIKE-SLIP FAULTO *A 1060

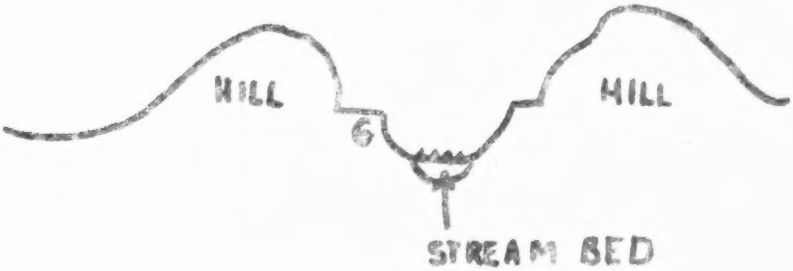
WHICH OF THE ABOVE ILLUSTRATE THE HANGING WALL AS HAVING MOVED DOWNWARDO *C 1061

WHICH OF THE ABOVE IS THE SAN ANDREAS FAULT AN EXAMPLE OFO *A 1062

****

THE STUDENT WILL SHOW HIS ABILITY TO IDENTIFY THE AGES OF STREAMS BY CHOOSING THE CHARACTERISTICS OF EACH AGE. %9□ 0162





THE ABOVE IS A DIAGRAM OF A STREAM VALLEY BOTH AT FACE VALUE AND CROSS SECTION. NOTICE THE AREAS LABELED WITH A NUMBER. DECIDE IF CONSIDERING THE AREA LABELED BY THAT NUMBER COULD HELP DETERMINE THE AGE OF THE STREAM. IF YES CHOOSE *A*, IF NO, CHOOSE *B*. 0036

AREA 1 *B 1063

AREA 2 *B 1064

AREA 3 *A 1065

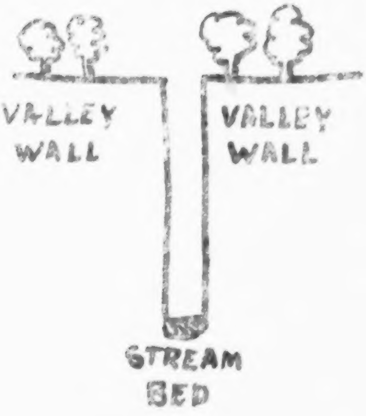
AREA 4 *B 1066

AREA 5 *A 1067

AREA 6 *A 1068

CHOOSE THE CORRECT ANSWER. 1

IN THE ABOVE DIAGRAM, THE STREAMS AGE IS PROBABLY THAT OF 1069
A. BIRTH.
B. YOUTH.
*C. MIDDLE AGE.
D. OLD AGE.



THE ABOVE DIAGRAM IS THAT OF A CROSS SECTION OF A YOUNG STREAM. THE VALLEY WALLS ARE VERTICAL AND DO NOT FORM THE V SHAPE VALLEY CHARACTERISTIC OF YOUNG STREAMS. WHYO 1070

*A. MASS MOVEMENT AND SLOPE WASH HAVEN,T HAD TIME TO SLANT THE SIDES.
B. NOT ALL YOUNG STREAMS HAVE V SHAPED VALLEY.
C. THIS STREAM DOES NOT UNDERCUT THE SIDES CAUSING CAVE INS.
D. A WATERFALL CUT THIS PARTICULAR AREA OF THE VALLEY.

ALL THE FOLLOWING ARE CHARACTERISTICS OF OLD AGE STREAMS EXCEPT 1071

A. WIDER THAN MEANDER BELT FOOD PLANE
B. OXBOW LAKES. MEANDER SCARS
*C. RAPIDS AND SMALL WATERFALLS
D. CHANGING STREAM COURSE

****

THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF THE EFFECTS OF GLACIATION ON LAND FORMS BY IDENTIFYING THEIR EFFECTS. %3□ 0165

CHOOSE THE CORRECT ANSWER. 1

THE KINDS OF CHANGE IN LAND FEATURES CAUSED BY GLACIERS DEPENDS UPON THE GLACIER,S TYPE. VALLEY GLACIERS CUT DEEP, WIDE U-SHAPED VALLEYS, USE THE ROCK DEBRIS THEY PICK UP TO GOUGE OUT THE LAND AND GENERALLY MAKE THE LAND RUGGED. CONTINENTAL GLACIERS 1077

A. ACT THE SAME AS VALLEY GLACIERS ONLY THEY ARE THICKER.
*B. TEND TO FLATTEN AND ROUND OFF THE LAND LEAVING MORAINES.
C. ACT DIFFERENTLY FROM VALLEY GLACIERS BUT UNKNOWN HOW DIFFERENT.
D. TEND TO CUT V-SHAPED WHICH LATER STREAMS FROM THE GLACIER WILL USE.

WORLDWIDE, GLACIERS ARE RESPONSIBLE FOR ALL OF THE FOLLOWING *EXCEPT* 1078

*A. MINERAL PRODUCTION.
B. SCRATCHED ROCK.
C. HANGING VALLEYS.
D. DRUMLINS.
E. CIRQUES.

WORLDWIDE, GLACIERS ARE RESPONSIBLE FOR ALL OF THE FOLLOWING *EXCEPT* 1079

A. ICEBERGS.
B. SOIL TRANSPORT.
C. MORAINES.
D. [illegible]PNES.
*E. VALLEY TERRACES.

****

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF THE FORMATION AND CHARACTERISTICS OF GLACIAL MOVEMENT BY IDENTIFYING THE PRINCIPLES INVOLVED IN BOTH FORMATION AND MOVEMENT. %3□ 0166

CHOOSE THE CORRECT ANSWER. 1

AFTER A HEAVY SNOWFALL, YOU AND A FRIEND RUN OUTSIDE AND START A SNOWBALL FIGHT. THE SNOW IS HEAVY AND WHEN YOU SQUEEZE A 1080

HANDFUL IT TURNS TO ICE. THIS IS AN EXAMPLE OF
A. LITHIFICATION.
B. SEDIMENTATION.
C. CHEMICAL CHANGE.
*D. SNOW COMPRESSION.

THE ABOVE SITUATION IS SIMILAR TO GLACIER FORMATION, BUT WHAT IN NATURE CONVERTS A SNOW FIELD TO A GLACIERO 1081
A. MECHANICAL WEATHERING CAUSED THE MELTED SNOW TO BECOME ICE.
*B. WEIGHT OF THE OVERLYING LAYERS CAUSE LOWER LAYERS TO BECOME ICE.
C. ROCKS FALLING FROM CLIFFS ALONG SIDE THE SNOWFIELD CAUSED THE ICE.
D. SEDIMENT DEPOSITED BY STREAMS ON THE GLACIER CAUSE THE ICE.

SCIENTISTS TELL US THAT GLACIERS MOVE. HOW CAN A HUGE LAYER OF ICE MOVEO 1082
A. THE WEIGHT OF THE ICE CAUSES IT TO MOVE IN ANY DIRECTION.
B. THE SUN MELTS THE ICE AND MAKES A PUDDLE WHICH FLOWS.
*C. THE PRESSURE OF THE UPPER LAYERS CAUSES THE LOWER LAYERS TO MOVE IN RESPONSE TO GRAVITY.
D. THE ATTRACTION BETWEEN THE LARGE MASS OF ICE AND A MOUNTAIN CAUSED IT TO MOVE.

****

THE STUDENT CAN APPLY CONCEPTS OF ROCK FORMATION BY IDENTIFYING THE CLASS TO WHICH SAMPLE ROCKS BELONG. %8□ 0270

TEACHERS NOTE - NUMBER *ONLY* THE FOLLOWING ROCK SPECIMENS THE SAME AS BELOW. 0084

ROCK 1 - SLATE
ROCK 2 - GRANITE
ROCK 3 - LIMESTONE
ROCK 4 - SANDSTONE
ROCK 5 - PUDDINGSTONE
ROCK 6 - MARBLE
ROCK 7 - CHALK
ROCK 8 - SHALE

CHOOSE WHICH GROUP EACH OF THE FOLLOWING ROCK SPECIMENS BELONG IN.
A. IGNEOUS.
B. SEDIMENTARY.
C. METAMORPHIC.

ROCK 1 IS CLASSIFIED AS *C 2400535

ROCK 2 IS CLASSIFIED AS *A 2400536

ROCK 3 IS CLASSIFIED AS *B 2400537

ROCK 4 IS CLASSIFIED AS *B 2400538

ROCK 5 IS CLASSIFIED AS *B 2400539

ROCK 6 IS CLASSIFIED AS *C 2400540

ROCK 7 IS CLASSIFIED AS *B 2400541

ROCK 8 IS CLASSIFIED AS *B 2400542

****

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF THE RELATIONSHIPS AMONG ROCKS BY ANSWERING CORRECTLY A SERIES OF RELATIONSHIP QUESTIONS. %11¤ 0153

CHOOSE THE CORRECT WORD TO COMPLETE EACH RELATIONSHIP. 0030

MAGMA IS TO IGNEOUS ROCK AS WATER IS TO   . 1002
A. HOT
*B. ICE
C. STEAM
D. ENERGY

INTELLIGENCE IS TO MAN AS CRYSTALS ARE TO   . 1003
*A. IGNEOUS ROCKS
B. SALT
C. GEM STONES
D. SEDIMENTS

GRANITE IS TO OBSIDIAN AS A WIFE IS TO   . 1004
A. MOTHER
B. LADY
*C. A MISS
D. GRANDMOTHER

BASALT IS TO   AS BOY IS TO GIRL. 1005
*A. GRANITE
B. GNEISS
C. ROCK
D. DIAMOND

RAW EGG IS TO BOILING WATER AS SEDIMENT IS TO   . 1007
A. SOFT
*B. LITHIFICATION
C. WEATHERING
D. SAND

CHOLOROPHYLL IS TO PLANTS AS   IS TO SEDIMENTARY ROCK. 1008
A. SAND
B. $CACO_3$
*C. LAYERING
D. WATER

MUD CRACKS AND RIPPLE MARKS ARE TO SEDIMENTARY ROCKS AS   ARE TO A BOOK. 1010
A. WORDS AND PAGES
*B. PAGES AND A COVER
C. DICTIONARIES AND BIBLES
D. READING AND SEEING

BLUE IS TO RED AS SLATE IS TO   . 1011
*A. GNEISS
B. SHALE
C. GRANITE
D. LIMESTONE

BIG IS TO ADULT ELEPHANTS AS BANDING OF MINERALS IS TO   . 1012
A. SEDIMENTATION
B. LITHIFICATION

*C. METAMORPHISM
D. CHANGE

****

THE STUDENT WILL SHOW HIS KNOWLEDGE OF A SOIL PROFILE BY ANSWERING QUESTIONS CONCERNING THE RATIONALE OF A SOIL PROFILE. %6□ 0154

ZONE A REPRESENTS THE TOPSOIL OR UPPERMOST LAYER. NEXT COMES ZONE B AND SO ON. ANSWER THE FOLLOWING QUESTIONS. 0031

IN WHAT ZONE WOULD YOU EXPECT TO FIND SAND. GRAVEL AND LARGE PIECES OF BEDROCKO 1013
A. ZONE A
B. ZONE B
*C. ZONE C
D. ZONE D

WHAT ZONE WOULD BE MADE OF CONSOLIDATED MATERIALO 1014
A. ZONE A
B. ZONE B
*C. ZONE C
D. ZONE D

THE RAGGED LINE AT THE BOTTOM OF ZONE D INDICATES THAT 1015
A. THE PERSON WHO DREW THE LINE OBVIOUSLY DID NOT KNOW THAT ZONE D ENDS SHARPLY.
*B. THE ZONE DOES NOT END AT THE RAGGED LINE BUT CONTINUES DOWNWARD.
C. THERE IS ANOTHER ZONE IN THE PROFILE WHICH IS NOT SHOWN.
D. ZONE D BLENDS INTO THE ZONE BENEATH IT.

THE SEPARATING LINES BETWEEN ZONES ARE STRAIGHT INDICATING SHARP DIVISIONS. IN NATURE IS THIS FOUNDO 1016
A. YES. BECAUSE MINERAL ARE IN LAYERS.
*B. NO. BECAUSE ONE ZONE BLENDS INTO ANOTHER.
C. YES, AND NO, DEPENDING UPON THE AREA.

THE FERTILITY OF THE SOIL IS DEFINED AS THE ABILITY TO SUPPORT PLANT LIFE. SOIL FERTILITY IS *ORIGINALLY* DEPENDENT UPON 1017
A. THE MINERALS FOUND IN ZONE A.
B. THE AMOUNT OF FERTILIZER IN THE SOIL.
*C. THE MINERALS FOUND IN THE BEDROCK.
D. THE AMOUNT OF CROPS HARVESTED.

THE SOIL PROFILE IS THE LAYERING WITHIN THE 1018
A. EARTH.
B. MANTLE.
C. CORE.
*D. CRUST.

****

OCEANOGRAPHY

THE STUDENT WILL KNOW THE MEANING OF OCEANOGRAPHY BY SELECTING 0125

ITS CORRECT DIFINITION. %1¤

CHOOSE THE CORRECT ANSWER. 1

OCEANOGRAPHY IS DEFINED AS 2400470
A. THE STUDY OF OCEANS AS THEY RELATE TO THE LAND FORMS AROUND 2400470
THEM. 2400470
*B. THE SCIENTIFIC STUDY OF OCEANS INCLUDING THEIR HISTORY,
CHEMISTRY, AND ANIMAL LIFE LIVING IN THEM.
C. THE SCIENTIFIC STUDY OF OCEANS AS THEY RELATE TO THE 2400470
GLACIAL AGE. 2400470

****

WEATHER

THE STUDENT CAN RECALL THE DEFINITION OF THE WATER CYCLE BY SELECTING IT WHEN GIVEN ITS DEFINITION. %1¤ 0029

CHOOSE THE CORRECT ANSWER. 1

THE PROCESS OF EVAPORATION, CONDENSATION AND PRECIPITATION IS 2400119
KNOWN AS THE 2400119
*A. WATER CYCLE. 2400119
B. LIFE CYCLE. 2400119
C. OXYGEN CYCLE. 2400119
D. ENERGY CYCLE. 2400119

****

THE STUDENT CAN EXTRAPOLATE FROM GIVEN INFORMATION TO FORM CONCLUSIONS ABOUT WEATHER. %4¤ 0041

CHOOSE THE CORRECT ANSWER.

IN THE WINTER, HOW WOULD THE AVERAGE TEMPERATURE CLOSE TO A 0184
LAKE COMPARE WITH THAT OF AREAS FARTHER FROM THE LAKE¤
*A. IT WOULD BE HIGHER BY THE LAKE. 2400184
B. IT WOULD BE LOWER BY THE LAKE. 2400184
C. THE TEMPERATURES WOULD BE THE SAME. 2400184
D. IT WOULD BE HIGHER BY THE LAKE AT NIGHT AND LOWER DURING 2400184
THE DAY. 2400184

IN THE SUMMER, HOW WOULD THE AVERAGE TEMPERATURE CLOSE TO THE 0185
LAKE COMPARE WITH THAT OF AREAS FARTHER FROM THE LAKE¤
A. IT WOULD BE HIGHER BY THE LAKE. 2400185
*B. IT WOULD BE LOWER BY THE LAKE. 2400185
C. THE TEMPERATURES WOULD BE THE SAME. 2400185
D. IT WOULD BE HIGHER BY THE LAKE AT NIGHT AND LOWER DURING 2400185
THE DAY. 2400185

A SEA BREEZE IS MOST LIKELY TO OCCUR 2400186
*A. ON A SUNNY DAY. 2400186
B. AT NIGHT. 2400186
C. IN THE WINTER. 2400186
D. IN THE EVENING. 2400186

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A LAND BREEZE IS *MOST* LIKELY TO OCCUR                                   0187
  A. ON A SUNNY DAY.                                                   2400187
 *B. ON A SUMMER NIGHT.
  C. IN THE WINTER.                                                    2400187
  D. IN THE MORNING.

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THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF WEATHER BY               0052
DISTINGUISHING BETWEEN WEATHER SAYINGS THAT HAVE SOME SCIENTIFIC
BASIS AND THOSE THAT ARE SUPERSTITIONS.  %2□

CHOOSE THE CORRECT ANSWER.                                                   1

WHICH WEATHER SAYING IS A SUPERSTITIONO                                2400240
  A.  THE NORTH WIND DOTH BLOW                                         2400240
     AND WE SHALL HAVE SNOW.                                           2400240
 *B. IF THE GROUNDHOG SEES HIS SHADOW ON FEBRUARY 2, WE WILL           2400240
     HAVE SIX MORE WEEKS OF WINTER.                                    2400240
  C. WHEN THE WIND VEERS TO THE EAST                                   2400240
      TIS GOOD FOR NEITHER MAN NOR BEAST.                              2400240
  D. EVENING RED AND MORNING GRAY                                      2400240
     HELPS THE TRAVELER ON HIS WAY                                     2400240
     EVENING GRAY AND MORNING RED                                      2400240
     BRINGS DOWN RAIN UPON HIS HEAD.                                   2400240

WHICH OF THE FOLLOWING WEATHER SAYINGS IN *NOT* A SUPERSTITIONO       2400241
  A. IF MARCH COMES IN LIKE A LION,                                    2400241
     IT WILL GO OUT LIKE A LAMB.                                       2400241
  B. IF IT RAINS ON EASTER,                                            2400241
     IT WILL RAIN THE SEVEN FOLLOWING SUNDAYS.                         2400241
 *C. IF THERE IS A RING AROUND THE MOON,                               2400241
     IT WILL SOON RAIN OR SNOW.                                        2400241
  D. IF THE GROUNDHOG SEES HIS SHADOW ON FEBRUARY 2, WE WILL           2400241
     HAVE SIX MORE WEEKS OF WINTER.                                    2400241

**************************************************************************************

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF VARIOUS WEATHER         0053
INSTRUMENTS BY SELECTING THE USES FOR EACH.  %6□

CHOOSE THE CORRECT ANSWER.                                                   1

A BAROMETER IS USED TO MEASURE                                         2400242
  A. TEMPERATURE.                                                      2400242
  B. WIND DIRECTION.                                                   2400242
  C. HUMIDITY.                                                         2400242
 *D. AIR PRESSURE.                                                     2400242
  E. PRECIPITATION.                                                    2400242

TO MEASURE TEMPERATURE, WE USE                                         2400243
 *A. A THERMOMETER.                                                    2400243
  B. A HYGROMETER.                                                     2400243
  C. A BAROMETER.                                                      2400243
  D. AN ANEMOMETER.                                                    2400243

A WEATHER VANE TELLS US ABOUT THE                                      2400244
  A. HUMIDITY.                                                         2400244
```

*B. WIND DIRECTION. 2400244
C. WIND SPEED. 2400244
D. PRECIPITATION. 2400244

TO MEASURE WIND SPEED WE USE 2400245
A. A SPEEDOMETER. 2400245
*B. AN ANEMOMETER. 2400245
C. A BAROMETER. 2400245
D. A THERMOMETER. 2400245

TO MEASURE THE AMOUNT OF MOISTURE IN THE AIR WE USE 2400246
*A. A HYGROMETER. 2400246
B. A BAROMETER. 2400246
C. A RAIN GAUGE. 2400246
D. CLOUDS. 2400246

WE MEASURE ______ WITH A RAIN GAUGE. 2400247
A. HUMIDITY 2400247
B. WEATHER 2400247
*C. PRECIPITATION 2400247
D. HURRICANES 2400247

****

THE STUDENT WILL SHOW KNOWLEDGE OF THE TERM METEOROLOGIST BY SELECTING THE CORRECT AREA OF STUDY. %1¤ 0056

CHOOSE THE CORRECT ANSWER. 1

A METEOROLOGIST IS A SCIENTIST WHO STUDIES 2400254
A. SOIL.
B. METERS. 2400254
*C. ATMOSPHERE. 2400254
D. EARTH. 2400254

****

THE STUDENT CAN APPLY THE CONCEPT THAT HEAT IS ABSORBED BY WATER AS IT EVAPORATES BY SELECTING THE CONCEPT THAT IS RELEVANT TO A PRESCRIBED SITUATION. %2¤ 0061

CHOOSE THE CORRECT ANSWER. 1

A PERSON FEELS COOL WHEN STANDING IN A BREEZE IN A WET BATHING 0262
SUIT. THIS OCCURRENCE CAN *BEST* BE EXPLAINED BY WHICH OF THE 2400261
FOLLOWINGO 2400261
A. WARM AIR IS LIGHTER THAN COLD AIR. 2400261
B. THE SUN HEATS THE EARTH UNEVENLY. 2400261
*C. HEAT IS ABSORBED BY WATER AS IT EVAPORATES.
D. THE RATE OF EVAPORATION INCREASES AS THE TEMPERATURE 2400261
INCREASES. 2400261

SOME WET COTTON IS WRAPPED OVER THE BULB OF ONE OF TWO 0263
THERMOMETERS SHOWING THE SAME TEMPERATURE. BOTH THERMOMETERS ARE 2400262
FANNED. WHAT HAPPENSO 2400262
A. THE TEMPERATURE OF THE COTTON THERMOMETER IS HIGHER. 2400262
*B. THE TEMPERATURE OF THE COTTON THERMOMETER IS LOWER. 2400262
C. THERE IS NO DIFFERENCE IN TEMPERATURE. 2400262
D. THE TEMPERATURE OF BOTH THERMOMETERS DROPS. 2400262

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  E. THE TEMPERATURE OF BOTH THERMOMETERS RISES.                    2400262

***************************************************************************

THE STUDENT CAN ANALYZE THE RELATIONSHIPS AMONG A GIVEN SET OF         0068
FACTS BY SELECTING THOSE MOST RELEVANT FOR THE EXPLANATION OF A
PHENOMENON %DESTRUCTION BY TORNADOES□.  %2□

USE THESE FOUR CHARACTERISTICS OF TORNADOES TO ANSWER QUESTIONS.       0002

   1. TORNADOES ARE FUNNEL SHAPED.
   2. THE WIND SPEED WITHIN THE FUNNEL OFTEN REACHES 500 MILES
      AN HOUR.
   3. THE AIR PRESSURE AT THE CENTER IS LOW.
   4. TORNADOES GENERALLY MOVE FROM SOUTHWEST TO NORTHEAST.

WHICH OF THE STATED CHARACTERISTICS ACCOUNTS FOR THE DESTRUCTIVE       0289
POWER OF TORNADOESO
   A. 1 AND 2.                                                      2400288
   B. 1 AND 3.                                                      2400288
  *C. 2 AND 3.                                                      2400288
   D. 2 AND 4.                                                      2400288
   E. 3 AND 4.                                                      2400288

WHEN A TORNADO IS APPROACHING. YOU SHOULD OPEN THE WINDOWS ON THE      0290
EAST OR NORTHEAST SIDE OF YOUR BUILDING BECAUSE                     2400289
   A. 1 AND 2.                                                      2400289
   B. 2 AND 3.                                                      2400289
   C. 2 AND 4.                                                      2400289
  *D. 3 AND 4.                                                      2400289

***************************************************************************

THE STUDENT CAN RECOGNIZE THE FACTORS THAT INFLUENCE THE RATE AT       0072
WHICH WATER EVAPORATES BY SELECTING THE FACTOR THAT DOES NOT. %1□

CHOOSE THE CORRECT ANSWER.                                                1

THE RATE AT WHICH WATER EVAPORATES DEPENDS ON ALL OF THE               0294
FOLLOWING *EXCEPT*                                                  2400293
  *A. BAROMETRIC PRESSURE.                                          2400293
   B. TEMPERATURE.                                                  2400293
   C. RELATIVE HUMIDITY.                                            2400293
   D. WIND.                                                         2400293

***************************************************************************

THE STUDENT WILL SHOW KNOWLEDGE OF THE TERM ATMOSPHERE BY              0086
SELECTING ITS CORRECT DEFINITION.  %1□

CHOOSE THE CORRECT ANSWER.                                                1

OF THE FOLLOWING. THE ONE WHICH IS THE BEST DEFINITION OF              0378
ATMOSPHERE IS                                                       2400377
   A. THE AIR POLLUTION ABOVE US.                                   2400377
  *B. THE ENVELOPE OF AIR AROUND THE EARTH.                         2400377
   C. OUTER SPACE.                                                  2400377
   D. BALL OF AIR IN SPACE.                                         2400377
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AFTER STUDYING THE ATMOSPHERE, THE CHILD WILL KNOW THE LAYERS OF         0087
THE ATMOSPHERE BY IDENTIFYING THEM FROM A LIST.  %2⊓

CHOOSE THE CORRECT ANSWER.                                                  1

OF THE FOLLOWING, THE ONE WHICH IS *NOT* A LAYER OF THE                  0379
ATMOSPHERE IS                                                         2400378
  A. EXOSPHERE.                                                       2400378
 *B. HEMISPHERE.                                                      2400378
  C. TROPOSPHERE.                                                     2400378
  C. STRATOSPHERE.                                                    2400378

OF THE FOLLOWING, THE ONE WHICH IS *NOT* A LAYER OF THE                  0380
ATMOSPHERE IS                                                         2400379
  A. IONOSPHERE.                                                      2400379
  B. TROPOSPHERE.                                                     2400379
  C. STRATOSPHERE.                                                    2400379
 *D. ENVOSPHERE.                                                      2400379

*************************************************************************

THE STUDENT WILL SHOW HIS KNOWLEDGE OF THE PRINCIPLES INVOLVED IN        0155
MECHANICAL WEATHERING BY IDENTIFYING THE PRINCIPLE AND/OR ITS
APPLICATION IN A GIVEN SITUATION.  %6⊓

CHOOSE THE CORRECT ANSWER.                                                  1

SEVERAL ROCK SAMPLES HAVE BEEN HEATED OVER A BUNSEN BURNER UNTIL         1019
THEY ARE VERY HOT.  THE ROCKS ARE THEN DROPPED INTO A BASIN OF
ICE WATER.  THE ROCKS CRACK WHEN THEY HIT THE WATER.  THIS IS AN
EXAMPLE OF
 *A. MECHANICAL WEATHERING.
  B. CHEMICAL WEATHERING.
  C. GLACIAL EROSION.
  D. WEATHER-BEATING.

THE ABOVE EXPERIMENT TOOK PLACE IN A LABORATORY.  WHERE IN               1020
*NATURE* COULD EXAMPLES OF THIS EXPERIMENT TAKE PLACE0
  A. STREAM BED
  B. DESERT FLOOR
 *C. MOUNTAIN CLIFFS
  D. SEA SHORE

WHAT IS THE BEST EXPLANATION FOR WHY THE ROCKS CRACKED0                  1021
  A. DROPPING THE ROCKS CAUSED THEM TO CRACK APART.
 *B. RAPID TEMPERATURE CHANGE CAUSED THEM TO CRACK APART.
  C. ICE WATER CAUSES ROCKS TO CRACK APART.
  D. HEAT CAUSES ROCKS TO MELT AND CRACK APART.

IF I *FILL* AN IRON PIPE WITH WATER, CLOSE BOTH ENDS TIGHTLY,            1022
PLACE THE PIPE IN A FREEZER UNTIL THE WATER FREEZES. WHAT
RESULT MIGHT YOU EXPECT0
  A. THE WATER WILL CRACK.
  B. THE WATER WILL LEAK OUT.
 *C. THE END COVERS WILL EXPLODE.
  D. THE IRON PIPE WILL RUST.
```

IN THE ABOVE EXPERIMENT, WHAT IS THE BEST EXPLANATION FOR THE RESULT. 1023

A. WATER CRACKS INTO PARTS WHEN IT FREEZES.
B. COLD WATER EXPANDS TO EXERT PRESSURE ON ITS CONTAINER.
C. IRON CRACKS AT TEMPERATURES BELOW 32 DEG. F.
*D. ICE EXPANDS WHEN IT FREEZES AND EXERTS PRESSURE ON ITS CONTAINER.

ASSUMING THAT THE ABOVE EXAMPLE IS AN ILLUSTRATION OF MECHANICAL WEATHERING, WHAT PROPERTY OF ROCKS WOULD ENABLE THIS PRINCIPLE TO WORK IN NATURE□ 1024

*A. POROSITY
B. SOLIDITY
C. DENSITY
D. PLASTICITY

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF CHEMICAL WEATHERING BY IDENTIFYING SITUATIONS IN WHICH IT IS A FACTOR AND/OR IDENTIFYING PRINCIPLES INVOLVED IN THE PROCESS. %3□ 0156

CHOOSE THE CORRECT ANSWER. 1

WHEN WALKING THROUGH AN OLD, DESERTED GRAVEYARD, YOU OBSERVE TOMBSTONES WHICH CANNOT BE READ AND OTHER TOMBSTONES WHICH CAN BE READ. UPON CLOSER INSPECTION YOU NOTICE THAT THE UNREADABLE TOMBSTONES ARE MADE OF LIMESTONE WHEREAS THE READABLE TOMBSTONES ARE MADE OF GRANITE. DATES FOUND ON THE GRANITE TOMBSTONES RANGE FROM 1829 TO 1900 -- DATES ON THE LIMESTONES ARE UNKNOWN. WHAT EXPLANATION FOR THIS VARIANCE IN READABILITY SEEMS BEST□ 1025

A. THE LIMESTONE TOMBSTONES WERE EXPOSED TO RAIN WATER MORE THAN THE OTHERS BECAUSE THE OTHERS WERE SHELTERED BY TREES.
*B. LIMESTONE READILY DECOMPOSES WHEN COMBINED WITH CARBONIC ACID WHICH RAIN WATER ACTUALLY IS.
C. VANDALS OBVIOUSLY DEFACED THE UNREADABLE TOMBSTONES.
D. EXPLANATION IMPOSSIBLE UNLESS FURTHER INFORMATION IS GIVEN.

YOU HAVE BUBBLED SOME OF YOUR EXHALED AIR INTO A JAR OF WATER BY BLOWING THROUGH A STRAW. YOU THEN PUT A PIECE OF *BLUE LITMUS* PAPER INTO THE WATER AND FIND THAT IT TURNS PINK. THIS INDICATES THAT THE WATER IS NOW AN ACID. HOW DO YOU EXPLAIN THIS□ 1026

A. WATER IS NATURALLY AN ACID.
B. THE WATER DISSOLVED SOME OF THE JAR CREATING AN ACID.
C. SALIVA FROM YOUR MOUTH COMBINED WITH WATER.
*D. CO_2 FROM YOUR BREATH COMBINED WITH THE WATER.

THE ABOVE EXPERIMENT IS A LAB EXPERIENCE. WHEN IN NATURE DOES THIS OCCUR□ 1027

*A. WHEN IT RAINS, THE FALLING WATER COMBINES WITH CO_2 FROM THE ATMOSPHERE.
B. WHEN IT RAINS, FALLING WATER COMBINES WITH MINERAL

FROM THE SOIL.
C. WHEN THE WIND BLOWS, AIR IS FORCED TO COMBINE WITH
WATER ON THE GROUND %STREAMS, LAKES¤.
D. WATER IN THE ATMOSPHERE IS CONVERTED TO ACID BY COSMIC
RADIATION.

****

THE STUDENT CAN APPLY KNOWLEDGE OF WEATHER CONDITIONS IN A GIVEN AREA BY MAKING GENERALIZATIONS RELATING TO WEATHER PATTERNS. %4¤ 0203

CHOOSE THE CORRECT ANSWER. 1

A WEATHER REPORT LISTED THE BAROMETIC PRESSURE IN AN AREA AT 28.4 INCHES. WHAT TYPE OF WEATHER CONDITIONS WOULD WE EXPECT TO FIND IN THE AREA0 1307
A. CLEAR, COOL AND SUNNY
B. WARM, CLEAR AND SUNNY
*C. SEVERE WEATHER-HURRICANE PROBABLE
D. LIGHT RAIN OR SNOW

A BAROMETRIC PRESSURE OF 28.4 INCHES *MOST LIKELY* IDENTIFIES AN AREA IN 1308
A. GREENLAND.
*B. THE CARIBBEAN SEA.
C. MAINE.
D. ONTARIO, CANADA.

IN PREDICTING WEATHER CONDITIONS FOR CHICAGO TOMORROW, WE WOULD BE MOST CONCERNED WITH WEATHER CONDITIONS IN 1309
*A. DES MOINES, IOWA.
B. TAMPA, FLORIDA.
C. AKRON, OHIO.
D. DETROIT, MICHIGAN.

A COOLING BREEZE IS GENERALLY PRESENT ALONG THE LAKEFRONT IN CHICAGO. THE BREEZE TENDS TO BLOW OUT OVER THE LAKE IN THE EVENING BECAUSE 1310
A. THE LAKE WATER IS COOLER THAN THE LAND.
B. THE LAND IS WARMER THAN THE LAKE WATER.
*C. THE LAND LOSES ITS HEAT MORE RAPIDLY THAN WATER.
D. THE LAKE WATER LOSES ITS HEAT MORE RAPIDLY THAN WATER.

****

THE STUDENT CAN DEMONSTRATE AN UNDERSTANDING OF THE FACTORS CAUSING THE DIFFERENCES BETWEEN THE SEASONS BY SELECTING THE CORRECT RESPONSE TO A GIVEN QUESTION. %4¤ 0230

CHOOSE THE CORRECT ANSWER. 1

WHY WOULD ONE SUMMER DAY BE COOLER THAN ANOTHER0 1579
A. THE SUN IS FARTHER AWAY THAT DAY
*B. THE SUN IS SHINING THROUGH THE CLOUDS
C. THE SUN IS SHINING LESS THAT DAY

WHY ARE SUMMER DAYS USUALLY WARMER THAN WINTER DAYS0 1580
A. THE SUN.S RAYS ARE SLANTED MORE
B. THE SUN.S RAYS ARE LONGER

```
 *C. THE SUN.S RAYS ARE MORE DIRECT

WHY IS WINTER SUNLIGHT COOLER THAN SUMMER SUNLIGHTO                    1581
 *A. THE SUN.S RAYS ARE SHORTER
  B. THE SUN,S RAYS ARE WEAKER
  C. THE SUN.S RAYS ARE LESS DIRECT

WHY DO WE SAY WE HAVE SHORT WINTER DAYSO                               1582
  A. WE HAVE LESS THAN 24 HOURS IN A WINTER DAY
  B. WE HAVE FEWER DAYS IN THE WINTER THAN IN THE SUMMER
 *C. WE HAVE FEWER DAYLIGHT HOURS THAN NIGHTIME HOURS


*************************************************************************

THE STUDENT WILL DEMONSTRATE AN KNOWLEDGE OF EVAPORATION BY            0238
SELECTING AN ENDING THAT BEST COMPLETES A GIVEN ASSUMPTION.  %1¤

CHOOSE THE CORRECT ANSWER.                                                1

SINCE EVAPORATION CHANGES WATER TO WATER VAPOR WE CAN ASSUME          1600
THAT WATER VAPOR IS USUALLY
  A. DRY AND WARM AIR.
  B. DRY AND COLD AIR.
 *C. MOIST AND WARM AIR.
  D. MOIST AND COLD AIR.


*************************************************************************

USING HIS UNDERSTANDING OF THE PROCESSES INVOLVED IN THE               0246
WATER CYCLE, THE STUDENT WILL DEMONSTRATE HIS ABILITY TO
DISTINGUISH FROM A GROUP OF INFERENCES THOSE THAT CAN BE
CONSIDERED VALID FROM THOSE THAT WOULD BE INVALID.  %5¤

DIRECTIONS - WHICH OF THE FOLLOWING INFERENCES COULD BE CORRECTLY      0074
MADE ABOUT THE WATER CYCLEO  CHOOSE *A* IF IT IS A VALID
INFERENCE AND *B* IF IT IS A NON-VALID INFERENCE.

WE ARE CONSTANTLY GETTING MORE WATER IN THE FORM OF RAIN THAN WE      1613
ARE LOSING BY EVAPORATION.  *B

WE ARE ALWAYS LOSING AND GAINING WATER ON EARTH.  *A                   1614

MORE WATER IS LOST FROM EVAPORATION THAN WE RECEIVE IN THE FORM        1615
OF RAIN.  *B

WATER IS BECOMING MORE SCARCE ALL THE TIME BY THE PROCESS OF          1616
EVAPORATION.  *B

THERE IS AN ENDLESS SUPPLY OF WATER FROM THE WATER CYCLE.  *A          1617


*************************************************************************

GIVEN A HYPOTHETICAL SITUATION OF NOT HAVING WATER VAPOR               0247
THE STUDENT WILL EXHIBIT HIS ABILITY TO APPLY HIS UNDERSTANDING
OF THE VALUE OF CONDENSATION BY PREDICTING THE PROBABLE OUTCOMES
OF SUCH A SITUATION.  %10¤

DIRECTIONS - GIVEN THE FOLLOWING SITUATION, DECIDE WHICH OF THE        0075
```

FOLLOWING STATEMENTS WOULD BE PROBABLE OUTCOMES BY CHOOSING
A. TRUE
B. FALSE IF THIS WOULD NOT BE A PROBABLE OUTCOME.

WITHOUT WATER VAPOR CONDENSING IN THE AIR, CONDITIONS ON EARTH WOULD BE VERY DIFFERENT.

THERE WOULDN,T BE GREEN PLANTS. *A 1618

PEOPLE WOULD HAVE TO SWIM IN SWIMMING POOLS INSTEAD OF LAKES. *B 1619

THE PRICE OF VEGETABLES WOULD GO UP. *B 1620

PEOPLE WOULD NOT EAT MUCH FRUIT, VEGETABLES, AND FISH BUT MUCH MEAT. *B 1622

THERE WOULDN,T BE ANY TREES ON MOUNTAINS. *A 1623

SEASONS OF THE YEAR WOULD BE DIFFERENT. *A 1624

CAMELS WOULD BE VERY COMMON AND IMPORTANT ON EARTH. *B 1626

PEOPLE WOULD NOT BUY SNOW-BLOWERS. *A 1627

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE CAUSE OF CONDENSATION BY SELECTING FROM A LIST OF ASSUMPTIONS THOSE WHICH INFER A HIGHER DEGREE OF PRECIPITATION. %4□ 0252

DECIDE WHETHER MUCH PRECIPITATION CAN BE EXPECTED IN EACH OF THE STARRED PLACES FROM READING THE STATED ASSUMPTIONS.
CHOOSE *A* FOR YES, OR *B* FOR NO. 0076

OCEAN WINDS MOVE OVER *ISLANDS* WITH LARGE AMOUNTS OF WATER VAPOR. *A 1641

WINDS OVER *PLAINS* ARE USUALLY DRY. *B 1642

MOUNTAINS CAUSE MOVING AIR TO RISE. *A 1643

THE COLD AIR ABOVE THE *ARCTIC LANDS* HOLDS LITTLE MOISTURE. *B 1644

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF A CHANGE OF AIR PRESSURE INDICATED BY A MERCURY BAROMETER BY SELECTING THE CHANGE OF AIR PRESSURE IN A GIVEN SITUATION. %2□ 0253

CHOOSE THE CORRECT ANSWER. 1

WHEN A MERCURY BAROMETER SHOWS RISING AIR PRESSURE, IT MEANS THAT THE AIR PRESSURE IS BECOMING 1645
A. STEADY.
*B. GREATER.
C. LESS.

WHEN A MERCURY BAROMETER SHOWS FALLING AIR PRESSURE, IT MEANS THAT THE AIR PRESSURE IS BECOMING 1646

A. STEADY.
B. GREATER.
*C. LESS.

****

USING GIVEN INFORMATION THE STUDENT WILL DEMONSTRATE 0254
UNDERSTANDING OF BAROMETRIC READINGS OF A MERCURY BAROMETER BY
SELECTING THE WEATHER CONDITIONS DIFFERENT READINGS INDICATE. %2¤

CHOOSE THE CORRECT ANSWER. 1

REMEMBERING THAT DRY AIR IS HEAVIER THAN MOIST AIR WHAT CAN BE 1647
EXPECTED WHEN A MERCURY BAROMETER SHOWS THE PRESSURE IS RISINGO
*A. CLEAR OR FAIR WEATHER
B. CLOUDING AND LIGHT RAIN
C. SEVERE WINDSTORMS

REMEMBERING THAT DRY AIR IS HEAVIER THAN MOIST AIR, WHAT CAN BE 1648
EXPECTED WHEN A MERCURY BAROMETER INDICATES FALLING PRESSUREO
A. CLEAR WEATHER
*B. CLOUDINESS AND DRIZZLE
C. A STORM

****

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF A COLD FRONT BY 0255
SELECTING THE EFFECTS A COLD FRONT HAS ON OTHER AIR MASSES. %3¤

CHOOSE THE CORRECT ANSWER. 1

A COLD FRONT IS WHERE A 1649
A. WARM AIR MASS MEETS A COLD AIR MASS.
B. COLD AIR MASS SETTLES ON A WARM AIR MASS.
*C. COLD AIR MASS MEETS A WARM AIR MASS.

WHEN A LARGE MASS OF COLD AIR MEETS A WARM MASS OF AIR 1650
A. THE COLD AIR WILL MOVE OVER THE WARM AIR.
B. THE COLD AIR WILL SETTLE ON THE WARM AIR.
*C. THE COLD AIR WILL MOVE THE WARM AIR UP.

IF A COLD AIR MASS IS KNOWN TO MOVE RAPIDLY AND FORCE WARM AIR 1651
UPWARD QUICKLY, THE KIND OF WEATHER WE CAN EXPECT FROM A COLD
FRONT IS
A. CALM.
B. WINDY.
*C. STORMY.

****

THE STUDENT WILL EXHIBIT A KNOWLEDGE OF THE NAMES OF THE 3 MAIN 0250
GROUPS OF CLOUD SHAPES BY CORRECTLY SELECTING THE GROUP THAT
NAMES THEM. %1¤

CHOOSE THE CORRECT ANSWER. 1

WHICH GROUP BELOW NAMES THE 3 MAIN GROUPS OF CLOUD SHAPESO 1637
*A. STRATUS, CIRRUS, AND CUMULUS

B. ALTO, NIMBUS, AND CIRRUS
C. STRATUS, NIMBUS, AND CUMULUS

****

THE STUDENT WILL BE ABLE TO DEMONSTRATE HIS ABILITY TO IDENTIFY 0251
THE KIND OF WEATHER A PARTICULAR FORM OF CLOUD GENERALLY
PREDICTS. %3□

CHOOSE THE CORRECT ANSWER. 1

CIRRUS, MEANING *CURL*, CLOUDS USUALLY INDICATE 1638
*A. FAIR WEATHER.
B. DRIZZLY WEATHER.
C. STORMY WEATHER.

STRATUS, MEANING *LAYER* OR *A SPREADING OUT*, CLOUDS GENERALLY 1639
PREDICT
A. THUNDERSTORMS.
*B. FAIR WEATHER.
C. LONG DRIZZLY RAIN.

CUMULONIMBUS CLOUDS ARE USUALLY ASSOCIATED WITH 1640
A. VERY FAIR WEATHER.
B. SHOWERS.
*C. THUNDERSTROMS.

****

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF A WARM FRONT BY 0256
SELECTING THE EFFECT OF A WARM FRONT ON OTHER AIR MASSES. %4□

CHOOSE THE CORRECT ANSWER. 1

A WARM FRONT IS WHERE A 1652
*A. WARM AIR MASS MEETS A COLD AIR MASS.
B. COLD AIR MASS MOVES UNDER A WARM AIR MASS.
C. COLD AIR MASS MEETS A WARM AIR MASS.

WHEN A LARGE MASS OF WARM AIR MEETS A COLD MASS 1653
A. THE COLD AIR WILL RISE SLOWLY.
*B. THE WARM AIR WILL SLOWLY MOVE OVER THE COLD MASS.
C. THE WARM AIR WILL RISE QUICKLY.

AN EXAMPLE OF A WARM AIR FRONT APPROACHING A COLD FRONT WOULD BE 1654
A. MOUNTAIN WIND MOVING DOWN INTO A VALLEY.
*B. OCEAN BREEZE MOVING OVER A MOUNTAIN.
C. SEA BREEZE MOVING OVER A BEACH.

BECAUSE A WARM MASS OF AIR HAS LESS DENSITY AND THEREFORE LESS 1655
FORCE, IT WILL MOVE SLOWLY OVER A COLD AIR MASS AND THEREFORE
BRING A
A. DRY DAY.
*B. A DAY OF LIGHT SHOWERS.
C. A DAY OF HEAVY RAINS.

****

MACHINES

THE STUDENT CAN APPLY HIS KNOWLEDGE OF THE MECHANICAL ADVANTAGE OF A LEVER BY SOLVING PROBLEMS RELATING TO MECHANICAL ADVANTAGE AND LENGTH OF LEVER ARMS. %2□ 0192

CHOOSE THE CORRECT ANSWER. 1

WHAT IS THE MECHANICAL ADVANTAGE WHEN A 120 POUND WEIGHT IS RAISED BY A LEVER 8 FEET LONG WITH FULCRUM PLACED 2 FEET FROM THE LOADO 1272

A. ONE
B. TWO
*C. THREE
D. FOUR

TO SECURE A MECHANICAL ADVANTAGE OF FOUR, WE MUST HAVE THE FOLLOWING - A 1273

*A. LEVER 15 FEET LONG WITH THE FULCRUM 3 FEET FROM THE LOAD.
B. HEAVY LOAD WITH A LEVER AT LEAST 12 FEET LONG.
C. LEVER 10 FEET LONG WITH THE FULCRUM 2 FEET FROM THE LOAD.
D. LEVER 15 FEET LONG WITH A FULCRUM 12 FEET FROM THE LOAD.

****

THE STUDENT CAN APPLY KNOWLEDGE OF THE RELATIONSHIP OF THE TERMS WORK, FORCE AND DISTANCE BY SOLVING PROBLEMS TO DETERMINE THE AMOUNT OF WORK ACCOMPLISHED, THE DISTANCE OVER WHICH THE WORK WAS ACCOMPLISHED OR THE FORCE INVOLVED. %3□ 0193

CHOOSE THE CORRECT ANSWER. 1

DURING THE BUILDING OF THE NEW SCHOOL A CRANE EASILY DID 2000 FOOT POUNDS OF WORK. THIS MEANS THAT THE CRANE WAS ABLE TO MOVE 1274

A. 200 POUNDS EASILY.
*B. 200 POUNDS 10 FEET.
C. 2000 POUNDS 10 FEET.
D. 200 POUNDS 1 FOOT.

JIM AND JERRY IN PLACING A 50 POUND FLOWER POT ON THE PORCH, DID 250 FOOT POUNDS OF WORK. HOW HIGH WAS THE PORCHO 1275

A. 10 FEET
B. 4 FEET
C. 6 FEET
*D. 5 FEET

A WEIGHT LIFTER DID 2100 FOOT-POUNDS OF WORK IN LIFTING A SINGLE WEIGHT. HOW MUCH DID THE WEIGHT LIFTER LIFTO 1276

A. 300 POUNDS
B. 500 POUNDS
C. 250 POUNDS
*D. INSUFFICIENT INFORMATION

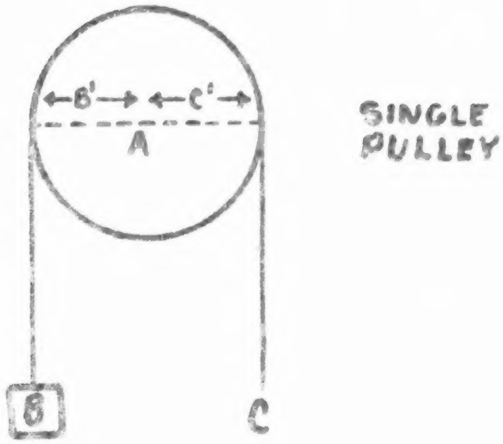
****

THE STUDENT CAN ANALYZE THE RELATIONSHIP BETWEEN THE LEVER AND 0195

THE SINGLE PULLEY BY IDENTIFYING COMMON ELEMENTS. %3□

CHOOSE THE CORRECT ANSWER. 1

THE MECHANICAL ADVANTAGE GAINED BY USING A SINGLE PULLEY IS 1281
A. TWO.
*B. ZERO.
C. FOUR.
D. THREE.


B'
C'
A
SINGLE PULLEY
B
C

BY EXERTING AN EFFORT ON *C* SHOWN IN THE DIAGRAM WE ARE ACTUALLY 1282
*A. CHANGING THE POSITION OF *A*, IN RELATION TO THE LOAD.
B. INCREASING THE EFFORT REQUIRED TO LIFT THE LOAD.
C. REDUCING THE EFFORT REQUIRED TO LIFT THE LOAD.
D. GAINING A MECHANICAL ADVANTAGE TO DO WORK.

THE EFFORT REQUIRED TO LIFT *B* MUST BE EQUAL TO *B* BECAUSE 1283
A. THERE IS NO MECHANICAL ADVANTAGE.
B. THE PULLEY IS STATIONARY.
C. THE MECHANICAL ADVANTAGE IS TWO.
*D. THE DISTANCE BETWEEN *B* AND *C* IS EQUAL.

****

ELECTRICITY

THE STUDENT WILL SHOW KNOWLEDGE OF CIRCUITS BY SELECTING THE PURPOSE FOR WHICH A FUSE WAS NOT INTENDED. %3□ 0057

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THE FOLLOWING IS *NOT* TRUE ABOUT A FUSE□ 2400255
*A. IT CAUSES SHORT CIRCUITS. 2400255
B. IT BREAKS THE CIRCUIT. 2400255
C. IT IS PART OF THE WIRING IN BUILDINGS. 2400255
D. IT HELPS TO PREVENT FIRES. 2400255

A FUSE HAS A WIRE IN IT WHICH 2400256
A. CANNOT MELT. 2400256
B. MELTS AT A VERY HIGH TEMPERATURE. 2400256
*C. MELTS AT A VERY LOW TEMPERATURE. 2400256
D. IS VERY BRITTLE. 2400256

WHEN A FUSE BURNS OUT YOU SHOULD 2400257
A. PUT IN A BIGGER FUSE. 2400257
B. PUT A PENNY IN THE FUSE BOX. 2400257
C. GET A LIGHT BULB WITH MORE VOLTAGE. 2400257
*D. FIND OUT WHAT CAUSED THE FUSE TO BURN OUT. 2400257

****

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF ELECTRICAL INSULATION BY IDENTIFYING CONDUCTORS FROM NON-CONDUCTORS. %2□ 0058

CHOOSE THE CORRECT ANSWER. 1

ANYTHING THROUGH WHICH ELECTRONS WILL FLOW IS CALLED A 2400258
*A. CONDUCTOR. 2400258
B. NONCONDUCTOR. 2400258
C. VOLT. 2400258
D. INSULATOR.

ALL OF THE FOLLOWING ARE CONDUCTORS OF ELECTRICITY *EXCEPT* 2400259
A. IRON.
B. SILVER. 2400259
C. COPPER. 2400259

*D. RUBBER. 2400259

****

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF ELECTROMAGNETS BY 0060
IDENTIFYING ITS PROPERTIES. %1□

CHOOSE THE CORRECT ANSWER. 1

ALL OF THE FOLLOWING STATEMENTS ABOUT AN ELECTROMAGNET ARE TRUE 0261
EXCEPT 2400260
A. ITS STRENGTH CAN BE INCREASED BY INCREASING THE NUMBER OF
COIL TURNS. 2400260
*B. THE COILED WIRE IS A MAGNET AS LONG AS ELECTRICITY IS 2400260
FLOWING. 2400260
C. ITS STRENGTH CAN BE INCREASED BY ADDING MORE VOLTS TO THE 2400260
CIRCUIT. 2400260
D. IT CAN BE USED IN GENERATORS. 2400260

****

THE STUDENT WILL SHOW AN UNDERSTANDING OF DIFFERENT TYPES OF 0063
CIRCUITS BY IDENTIFYING THE CHARACTERISTICS OF PARALLEL AND
SERIES CIRCUITS. %5□

CHOOSE THE CORRECT ANSWER. 1

TWO LIGHT BULBS ARE CONNECTED IN A CIRCUIT USING A 1 1/2 VOLT DRY 0268
CELL. EACH BULB RECEIVES 3/4 OF A VOLT. THE LIGHTS ARE CONNECT- 2400267
ED 2400267
*A. IN SERIES. 2400267
B. IN PARALLEL. 2400267
C. INCORRECTLY. 2400267
D. TO A SWITCH. 2400267

ALL OF THE FOLLOWING ARE EXAMPLES OF PARALLEL WIRING *EXCEPT* 0269
A. EACH OF THREE BULBS IS AS BRIGHT AS WHEN THERE WAS ONE BULB. 2400269
B. OUR HOMES ARE WIRED IN THIS WAY. 2400268
C. EACH BULB HAS ITS OWN PATH TO AND FROM THE DRY CELL. 2400268
*D. ELECTRICITY MUST FLOW THROUGH ALL OF THE BULBS IN THE 2400268
CIRCUIT. 2400268

ALL OF THE LIGHTS ON YOUR CHRISTMAS TREE GO OUT WHEN ONE BULB 0270
BURNS OUT. WHAT KIND OF WIRING MUST THEY HAVE□ 2400269
A. TUNGSTEN 2400269
B. PARALLEL 2400269
C. FILAMENT 2400269
*D. SERIES 2400269

TWO DRY CELLS ARE CONNECTED IN PARALLEL. DESCRIBE THE LIGHT WITH 0271
TWO DRY CELLS AS COMPARED TO THE LIGHT WITH ONE DRY CELL. THE 2400270
LIGHT WITH TWO CELLS 2400270
A. GETS BRIGHTER. 2400270
*B. IS THE SAME BRIGHTNESS. 2400270
C. GETS DIMMER. 2400270
D. GOES OUT. 2400270

A CONNECTION IS BETTER WHEN CELLS ARE TO BE USED OVER A 0272
LONG PERIOD OF TIME. 2400271

A. CIRCUIT 2400271
*B. PARALLEL 2400271
C. SERIES 2400271
D. COMPLETE 2400271

****

THE STUDENT WILL BE ABLE TO DIFFERENTIATE BETWEEN CURRENT AND STATIC ELECTRICITY BY MARKING GIVEN EXAMPLES CORRECTLY. %5□ 0167

DIRECTIONS - DECIDE IF EACH EXAMPLE BELOW IS CAUSED BY CURRENT OR STATIC ELECTRICITY. CHOOSE *A* FOR CURRENT ELECTRICITY AND CHOOSE *B* IF IT IS AN EXAMPLE OF STATIC ELECTRICITY. 0037

LIGHTNING *B 1083

BURNING LIGHT BULB *A 1084

A HOT IRON *A 1085

SHOCK WHEN YOU SLIDE OUT OF A CAR *B 1086

SHOCK WHEN YOU TOUCH A DOOR KNOB *B 1087

****

THE STUDENT WILL SHOW HIS UNDERSTANDING OF A COMPLETE CIRCUIT BY SELECTING THE CORRECT LIST OF COMPONENTS NEEDED IN A GIVEN SITUATION. %3□ 0170

DIRECTIONS - READ EACH PROBLEM AND DECIDE WHAT EQUIPMENT WILL BE NEEDED TO MAKE THE ITEM WORKABLE. 0039

MAKE A LIGHT BULB BURN. 1101
A. WIRE, BULB, SOCKET FOR BULB
*B. WIRE, BULB, BATTERY
C. BULB, BATTERY, SOCKET FOR BULB
D. BULB, SWITCH, BATTERY

MAKE A DOORBELL RING WHEN SOMEONE PUSHES THE BUTTON. 1102
A. DOORBELL, BATTERY, WIRE, FEEDBACK CONTROL
B. BATTERY, WIRE, SWITCH, FUSE
C. THERMOSTAT, WIRE, FUSE, DOORBELL
*D. BATTERY, WIRE, SWITCH, DOORBELL

MAKE AN ELECTROMAGNET. 1103
A. PERMANENT MAGNET, BATTERY, TACKS
*B. WIRE, BATTERY, NAIL
C. WIRE, NAIL, BOLT
D. BOLT, PERMANENT MAGNET, BATTERY

****

THE STUDENT WILL APPLY HIS KNOWLEDGE OF BATTERIES TO DECIDE WHICH TYPE OF BATTERY IS BEST SUITED FOR GIVEN USE. %6□ 0176

READ THE ITEM BELOW AND CHOOSE THE LETTER CORRESPONDING TO THE TYPE OF BATTERY THAT WOULD BE BEST. 0044

A. DRY CELLS
B. STORAGE BATTERY
C. SOLAR BATTERY

A BATTERY FOR A SATELLITE *C 1140

A BATTERY FOR A CAR *B 1141

A BATTERY FOR A CLOCK *A 1142

A BATTERY FOR A RADIO *A 1143

A BATTERY FOR A SMALL PLANE *B 1144

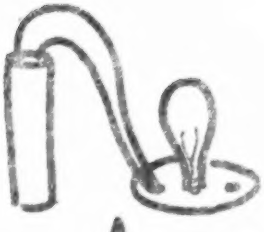
A BATTERY FOR A FLASH CAMERA *A 1145

* * *

THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF ELECTRICAL CIRCUITRY BY SELECTING THE ILLUSTRATION WHICH BEST SHOWS THE STATED CIRCUIT. %4□ 0178

(REFER TO DIAGRAMS ON PAGE 88A FOR ITEMS 1156 - 1159 (page 89)

1156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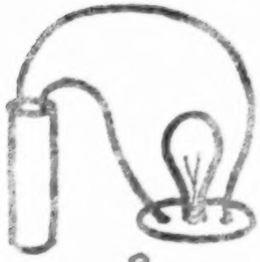
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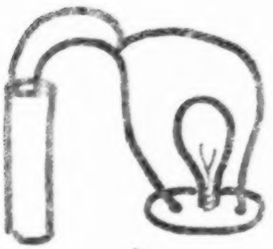
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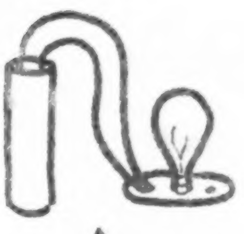
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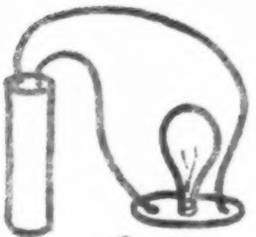
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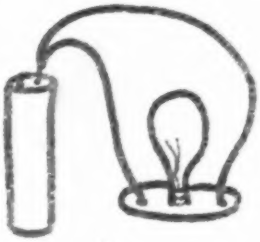
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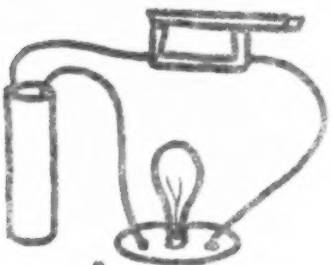
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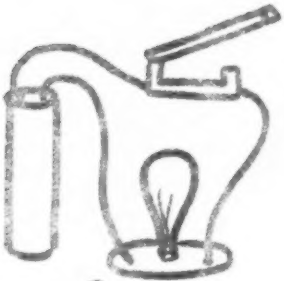
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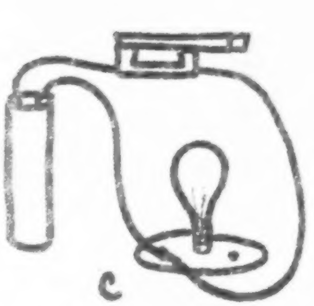
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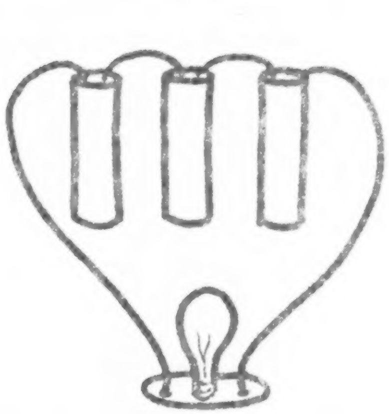
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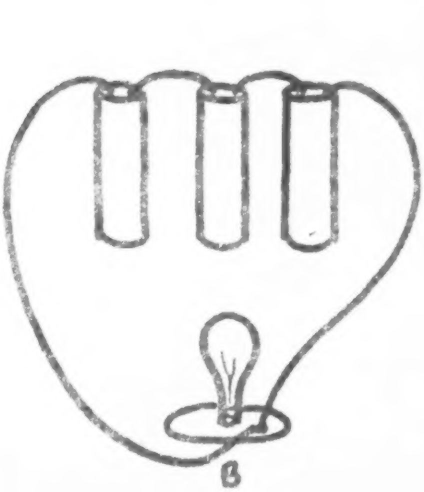
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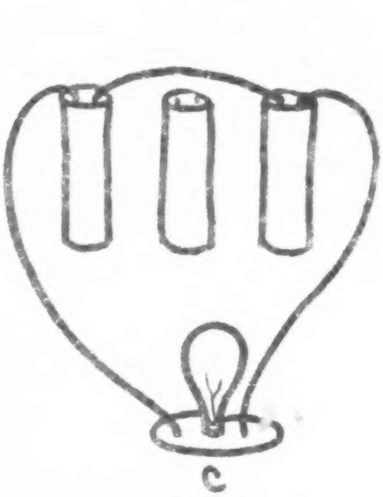
C

CHOOSE THE LETTER OF THE PICTURE THAT *BEST* SHOWS THE TYPE OF CIRCUIT GIVEN. 0047

SHORT CIRCUIT *C 1156

COMPLETE CIRCUIT *B 1157

A COMPLETE CIRCUIT *A 1158

AN INCOMPLETE CIRCUIT *B 1159

* * *

THE STUDENT WILL ANALYZE THE RELATIONSHIP BETWEEN CONDUCTORS IN A CHART AND SELECT THE MOST APPROPRIATE MATERIAL THAT COULD BE OR WAS USED IN A SPECIFIC SITUATION. %8D 0221

THE FOLLOWING CHART IS IN A LOGICAL ORDER. DETERMINE THE ORDER AND THEN SELECT THE CORRECT MATERIAL FOR THE FOLLOWING SITUATIONS. 0062

1. SILVER
2. COPPER
3. ALUMINUM
4. IRON
5. GLASS
6. WATER
7. WOOD
8. ASBESTOS
9. GLASS WOOL
10. COTTON
11. ROCK WOOL
12. AIR

THE ORDER OF THIS LIST IS DETERMINED BY THE MATERIAL,S ABILITY TO 1429

A. ABSORB HEAT.
B. PRODUCE HEAT.
C. RETAIN HEAT.
*D. CONDUCT HEAT.

THE LIST IS ORDERED FROM 1430

*A. BETTER TO POORER.
B. POORER TO BETTER.
C. EXPENSIVE TO INEXPENSIVE.
D. INSULATORS TO CONDUCTORS.

IF YOU WERE HOLDING A HANDLE ON A PAN ON A STOVE, WHICH OF THE FOLLOWING WOULD YOU LIKE THE HANDLE TO BE MADE OFo 1431

A. IRON
B. COPPER
*C. WOOD
D. ALUMINUM

WHICH OF THE FOLLOWING WOULD BE THE *BEST* MATERIAL TO LINE THE BOTTOM OF COOKING PANSo 1432

*A. COPPER
B. ALUMINUM
C. GLASS
D. IRON

THERMAL WINDOWS ARE TWO PIECES OF GLASS WITH AIR CAUGHT BETWEEN THEM. IN THE WINTER THESE WINDOWS WOULD 1433
A. KEEP THE HEAT OUT.
*B. KEEP THE HEAT IN.
C. BE STRONGER.
D. BE CLEANER.

A BUILDER WISHES TO KEEP A HOUSE COOL IN THE SUMMER AND WARM IN THE WINTER, SO HE WILL PUT A LINING BETWEEN THE WALLS OF THE HOUSE. THE BEST MATERIAL HE COULD USE WOULD BE 1434
A. ALUMINUM.
B. WOOD.
*C. ROCK WOOL.
D. ASBESTOS.

3 FRYING PANS OF CHICKEN WERE ON THE STOVE ALL COOKING OVER A MEDIUM FLAME. AFTER 10 MINUTES 2 OF THE PANS OF CHICKEN BEGAN TO BURN. THE CHICKEN THAT DIDN,T BURN PROBABLY WAS COOKED IN A PAN LINED WITH 1435
A. IRON.
B. GLASS.
C. ALUMINUM.
*D. COPPER.

THE CHICKEN THAT WAS BURNED THE MOST WAS PROBABLY COOKED IN A PAN LINED WITH 1436
*A. IRON.
B. SILVER.
C. ALUMINUM.
D. COPPER.

****

THE STUDENT WILL REALIZE THE IMPORTANCE OF ELECTRICITY BY IDENTIFYING FROM A GIVEN SITUATION THOSE THINGS WHICH COULD NOT TAKE PLACE WITHOUT ELECTRICITY. %2□ 0177

IN THE STORY BELOW READ EACH SENTENCE CAREFULLY. DECIDE IF EVERYTHING THAT HAPPENS IN THAT SENTENCE COULD TAKE PLACE WITHOUT *ANY KIND OF ELECTRICITY*. THEN SELECT THE ANSWER THAT LISTS ALL OF THE SENTENCES THAT COULD *NOT* HAPPEN. 0045

MARTHA AWAKENED TO HER CLOCK-RADIO ALARM. 2. SHE GOT READY FOR WORK. 3. SHE WAS LATE AS USUAL SO SHE JUST PUT A PIECE OF BREAD IN THE TOASTER FOR BREAKFAST. 4. AFTER EATING BREAKFAST SHE HURRIED TO HER CAR AND DROVE TO WORK. 1146
A. 1,3
B. 2,3,4
*C. 1,3,4
D. 1,2,3

JIM CAME HOME FROM SCHOOL. 6. HE WENT TO THE REFRIGERATOR AND TOOK OUT AN ICE CREAM BAR. 7. THEN HE TURNED ON HIS RECORD PLAYER AND LISTENED TO IT AS HE PLAYED WITH SOME TOYS. 8. HE FINALLY PUT HIS TOYS AWAY WHEN HIS MOTHER CALLED HIM TO SUPPER. 1147
A. 5,6,7,8
*B. 6,7
C. 5,6,7
D. 7,8

****

PLANETS AND SPACE TRAVEL

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF THE PLANETS BY SELECTING FACTS CONCERNING INDIVIDUAL PLANETS. %12□ 0036

CHOOSE THE CORRECT ANSWER. 1

THE PLANET CLOSEST TO THE SUN IS 2400149
A. VENUS. 2400149
B. PLUTO. 2400149
C. EARTH. 2400149
D. JUPITER. 2400149
*E. MERCURY. 2400149

THE EARTH IS THE   LARGEST PLANET. 2400150
A. SECOND 2400150
B. THIRD 2400150
*C. FIFTH 2400150
D. SEVENTH 2400150

THE SMALLEST PLANET IS 2400151
A. URANUS.
B. JUPITER. 2400151
C. NEPTUNE. 2400151
*D. MERCURY. 2400151

THE EARTH REVOLVES AROUND 2400152
A. VENUS. 2400152
B. THE MOON. 2400152
*C. THE SUN. 2400152
D. ORBITS. 2400152

THE PLANET WHICH SOMETIMES LOOKS LIKE A MOON TO US WHEN VIEWED 0153
THROUGH A TELESCOPE IS
*A. VENUS. 2400153
B. SATURN. 2400153
C. JUPITER. 2400153
D. URANUS. 2400153

EXCEPT FOR THE MOON, THE BRIGHTEST LIGHT IN THE NIGHT SKY IS 2400154
A. THE SUN. 2400154
*B. VENUS. 2400154
C. SATURN. 2400154
D. JUPITER. 2400154

THE PLANET THAT IS RINGED BY THREE WIDE BANDS IS 2400155
*A. SATURN. 2400155
B. JUPITER. 2400155
C. NEPTUNE. 2400155
D. MARS. 2400155

THE LARGEST PLANET IS 156
A. EARTH. 2400156
*B. JUPITER. 2400156
C. SATURN. 2400156

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  D. MERCURY.                                                            2400156

IT TAKES EARTH APPROXIMATELY          DAYS TO ORBIT THE SUN.                0157
 *A. 365                                                                 2400157
  B. 1                                                                   2400157
  C. 52                                                                  2400157
  D. 7                                                                   2400157
  E. 200                                                                 2400157

THE PLANET MOST LIKE THE EARTH IS                                        2400158
  A. PLUTO.                                                              2400158
  B. SATURN.                                                             2400158
 *C. VENUS.                                                              2400158
  D. MARS.                                                               2400158

ALTOGETHER, JUPITER HAS          SATELLITES.                                0159
  A. TWO                                                                 2400159
  B. FOUR                                                                2400159
 *C. TWELVE                                                              2400159
  D. SIXTEEN                                                             2400159

WHICH PLANET HAS NO SATELLITESO                                              161
 *A. MERCURY                                                             2400161
  B. EARTH                                                               2400161
  C. JUPITER                                                             2400161
  D. NEPTUNE                                                             2400161
  E. MARS                                                                2400161


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THE STUDENT WILL DEMONSTRATE HIS KNOWLEDGE OF THE DIFFERENT                 0075
SHAPES OF GALAXIES, SUCH AS IRREGULAR, ELLIPTICAL, AND SPIRAL, BY
SELECTING THE SHAPE FOR GIVEN GALAXIES.  %3¤

CHOOSE THE CORRECT SHAPE FOR EACH GALAXY LISTED.                               4

THE MILKY WAY GALAXY IS CLASSIFIED AS WHAT SHAPEO                           0309
  A. IRREGULAR                                                           2400308
  B. ELLIPTICAL                                                          2400308
 *C. SPIRAL                                                              2400308

THE ANDROMEDA GALAXY IS CLASSIFIED AS WHAT SHAPEO                           0310
  A. IRREGULAR                                                           2400309
  B. ELLIPTICAL                                                          2400309
 *C. SPIRAL                                                              2400309

THE HORSE SHOE NEBULA IS CLASSIFIED AS WHAT SHAPEO                          0311
 *A. IRREGULAR                                                           2400310
  B. ELLIPTICAL                                                          2400310
  C. SPIRAL                                                              2400310


****************************************************************************

THE STUDENT CAN DEMONSTRATE HIS KNOWLEDGE OF CONSTELLATIONS BY              0076
COMPARING AND IDENTIFYING SPECIFIC STAR GROUPS ON A STANDARDIZED
CONSTELLATION MAP.  %8¤

CHOOSE THE CORRECT CONSTELLATION GROUP IN WHICH THE STAR COULD              0005
BE CLASSIFIED.
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RIGEL IS FOUND IN WHAT CONSTELLATION GROUPO                                312
 *A. ORION
  B. URSA MINOR                                                        2400311
  C. CASSIOPEIA                                                        2400311

VEGA IS FOUND IN WHAT CONSTELLATION GROUPO                                 313
  A. URSA MAJOR                                                        2400312
  B. URSA MINOR                                                        2400312
  C. CASSIOPEIA                                                        2400312
 *D. LYRA                                                              2400312

BETELGEUSE IS FOUND IN WHAT CONSTELLATION GROUPO                          0314
  A. URSA MAJOR                                                        2400313
  B. URSA MINOR                                                        2400313
 *C. ORION                                                             2400313

POLARIS IS FOUND IN WHAT CONSTELLATION GROUPO                             0315
  A. URSA MAJOR                                                        2400314
 *B. URSA MINOR                                                        2400314
  C. CASSIOPEIA                                                        2400314

CASTOR IS FOUND IN WHAT CONSTELLATION GROUPO                              0316
  A. URSA MAJOR                                                        2400315
  B. URSA MINOR                                                        2400315
  C. ORION
  D. CASSIOPEIA
 *E. GEMINI

REGULUS IS FOUND IN WHAT CONSTELLATION GROUPO                             0317
  A. URSA MAJOR                                                        2400316
  B. URSA MINOR                                                        2400316
  C. CASSIOPEIA                                                        2400316
 *D. LEO                                                               2400316
  F. ORION                                                             2400316

SERUS IS FOUND IN WHAT CONSTELLATION GROUPO                               0318
  A. URSA MAJOR                                                        2400317
  B. URSA MINOR                                                        2400317
  C. LEO                                                               2400317
 *D. CANIS MAJOR                                                       2400317
  F. CANIS MINOR                                                       2400317

POLLUX IS FOUND IN WHAT CONSTELLATION GROUPO                              0319
  A. URSA MAJOR                                                        2400318
  B. URSA MINOR                                                        2400318
  C. CASSIOPEIA                                                        2400318
 *D. GEMINI                                                            2400318
  F. ORION                                                             2400318

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THE STUDENT CAN LOCATE AND COMPARE THE BASIC CHARACTERISTICS 0077
OF PLANETS BY USING A STANDARDIZED DIAGRAM OF THE SOLAR SYSTEM.
%15□ %NEED DIAGRAM OF SOLAR SYSTEM□

USING THE ABOVE CHART, LOCATE AND COMPARE THE FOLLOWING PLANETS 0006
IN THEIR ORBITAL REVOLUTION AROUND THE SUN.

THE INNER PLANETS REVOLVING AROUND THE SUN ARE 0320
A. SATURN, NEPTUNE, PLUTO. 2400319
B. EARTH, MARS, JUPITER. 2400319
C. JUPITER, SATURN, NEPTUNE. 2400319
*D. MERCURY, VENUS, MARS, EARTH. 2400319

THE OUTER PLANETS REVOLVING AROUND THE SUN ARE 0321
A. SATURN, NEPTUNE, PLUTO, EARTH, MERCURY.
B. EARTH, MARS, NEPTUNE. 2400320
*C. JUPITER, SATURN, URANUS, NEPTUNE, PLUTO. 2400320
D. SATURN, URANUS, NEPTUNE, MARS.
E. MERCURY, VENUS, MARS, EARTH. 2400320

THE PLANET CLOSEST TO THE SUN IS 0322
A. VENUS. 2400321
*B. MERCURY. 2400321
C. EARTH. 2400321
D. JUPITER. 2400321

THE PLANET REVOLVING IN THE THIRD ORBITAL PLANE AROUND THE SUN IS 0323
A. MARS. 2400322
B. VENUS. 2400322
C. MERCURY. 2400322
*D. EARTH. 2400322

PLANETOIDS ARE FOUND BETWEEN THE ORBITAL PLANES OF 0324
A. MERCURY AND VENUS. 2400323
B. VENUS AND EARTH. 2400323
C. EARTH AND MARS. 2400323
*D. MARS AND JUPITER. 323

THE PLANETS WHICH HAVE %NO* KNOWN SATELLITES ARE 0325
A. URANUS AND EARTH. 2400324
B. MERCURY AND MARS. 2400324
C. JUPITER AND SATURN. 2400324
*D. MERCURY, VENUS AND PLUTO. 2400324

THE PLANET WHICH APPARENTLY HAS THE GREATEST NUMBER OF SATELLITES 0326
IS
A. SATURN. 2400325
*B. JUPITER. 2400325
C. URANUS. 2400325
D. NEPTUNE. 2400325

THE SATELLITES WHICH HAS THREE RINGS ROTATING AROUND ITS PLANET 0327
IS
A. NEPTUNE. 2400326
B. JUPITER. 2400326
*C. SATURN. 2400326
D. MARS. 2400326

WHICH PLANET HAS THE SHORTEST REVOLUTION AROUND THE SUN□ 0328
*A. MERCURY 2400327
B. VENUS 2400327

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   C. EARTH                                                          2400327
   D. MARS                                                           2400327

 WHICH PLANET TAKES 365 DAYS TO REVOLVE AROUND THE SUNO                 0329
   A. VENUS                                                          2400328
  *B. EARTH                                                          2400328
   C. MARS                                                           2400328
   D. JUPITER                                                        2400328

 THE PLANET WITH THE SLOWEST ROTATIONAL SPEED AS IT REVOLVES            0330
 AROUND THE SUN IS
  *A. MERCURY.                                                       2400329
   B. VENUS.                                                         2400329
   C. EARTH.                                                         2400329
   D. MARS.                                                          2400329

 WHICH PLANET IS CONSIDERED THE LARGEST IN SIZEO                        0331
   A. MARS                                                           2400330
   B. SATURN                                                         2400330
  *C. JUPITER                                                        2400330
   D. URANUS                                                         2400330

 WHICH PLANETS APPARENTLY HAVE ONLY TWO SATELLITESO                     0332
   A. EARTH, MARS                                                    2400331
   B. NEPTUNE, PLUTO                                                 2400331
   C. MARS, PLUTO                                                    2400331
  *D. MARS, NEPTUNE                                                  2400331

 WHICH PLANET IS THE FARTHEST DISTANCE FROM THE SUNO                    0333
   A. SATURN                                                         2400332
   B. URANUS                                                         2400332
   C. NEPTUNE                                                        2400332
  *D. PLUTO                                                          2400332

 WHICH PLANET IS CALLED THE SISTER PLANET OF EARTHO                     0334
   A. MERCURY                                                        2400333
   B. VENUS                                                          2400333
  *C. MARS                                                           2400333
   D. JUPITER                                                        2400333

*************************************************************************

THE CHILD WILL KNOW THE MEANING OF ASTEROID BY SELECTING THE BEST       0090
DEFINITION FOR IT.  %1□

CHOOSE THE CORRECT ANSWER.                                                 1

OF THE FOLLOWING, THE ONE WHICH BEST DEFINES ASTEROID IS                0387
  *A. SMALL PLANET.                                                  2400386
   B. SMALL ASTERS.                                                  2400386
   C. SMALL METEORS.                                                 2400386
   D. SMALL STARS.                                                   2400386

*************************************************************************

THE CHILD WILL KNOW THE MEANING OF ESCAPE VELOCITY, BY SELECTING        0091
ITS DEFINITION.  %1□

CHOOSE THE CORRECT ANSWER.                                                 1
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WHICH OF THE FOLLOWING BEST DEFINES ESCAPE VELOCITY0 0388
*A. THE VELOCITY NEEDED FOR A SHIP TO LEAVE EARTH,S GRAVITATIONAL PULL.
B. THE VELOCITY NEEDED TO GET OFF THE GROUND.
C. THE VELOCITY NEEDED TO LEAVE SHIP WHILE ON SPACE.
D. NONE OF ABOVE

****

THE CHILD WILL KNOW THE MEANINGS OF ROTATION AND REVOLUTION BY SELECTING THE BEST DEFINITIONS FOR THEM. %2¤ 0092

CHOOSE THE CORRECT ANSWER. 1

THE TERM WHICH CORRECTLY DEFINES ROTATION IS 0389
*A. SPINNING OF A BODY, AROUND AN IMAGINARY LINE DRAWN THROUGH ITS CENTER.
B. SPINNING OF A BODY IN TWO DIRECTIONS.
C. MOVING AROUND THE SUN IN A DEFINITE PATH. 2400388
D. MOVING AROUND THE MOON IN A DEFINITE PATH. 2400388

THE TERM WHICH CORRECTLY DEFINES REVOLUTION IS 0390
*A. THE MOTION OF ONE BODY IN SPACE AROUND ANOTHER.
B. MOVING OF A BODY THROUGH SPACE. 2400389
C. SPINNING OF A BODY ON AN AXIS. 2400389
D. FALLING OF A BODY OFF ITS AXIS. 240038

****

GIVEN THE DEFINITION OF ROTATION AND REVOLUTION, THE CHILD CAN APPLY THIS INFORMATION BY PICKING OUT THE EFFECTS OF EACH ON THE EARTH. %2¤ 0093

CHOOSE THE CORRECT ANSWER. 1

ONE OF THE EFFECTS OF ROTATION ON THE EARTH IS 0391
A. SEASONS. 2400390
*B. NIGHT AND DAY. 2400390
C. YEAR. 2400390
D. NONE OF ABOVE. 2400390

ONE OF THE DIRECT EFFECTS OF REVOLUTION IS 0392
A. RAINFALL.
*B. SEASONS. 2400391
C. NIGHT AND DAY. 2400391
D. NONE OF ABOVE. 2400391

****

AFTER HAVING STUDIED THE PLANETS AND THEIR RELATIONSHIP TO THE SUN, THE CHILD CAN APPLY THIS KNOWLEDGE BY SELECTING FROM A GROUP OF STATEMENTS THE CORRECT EFFECT THE SUN HAS ON VARIOUS PLANETS. %2¤ 0094

CHOOSE THE CORRECT ANSWER. 1

BECAUSE OF ITS POSITION IN RELATION TO THE SUN, MERCURY WOULD 0393

```
PROBABLY                                                          2400392
  A. MOVE VERY SLOWLY AROUND THE SUN.                             2400392
 *B. HAVE SHORTER DAYS AND NIGHTS THAN ON EARTH.                  2400392
  C. BE EXTREMELY HOT WHEN FACING THE SUN.                        2400392
  D. NONE OF THE ABOVE.                                           2400392

BECAUSE OF ITS POSITION IN RELATION TO THE SUN, PLUTO WOULD          0394
PROBABLY                                                          2400393
  A. SUPPORT LIFE.                                                2400393
 *B. BE TOO COLD TO SUPPORT LIFE AS WE KNOW IT.                   2400393
  C. MOVE IN A CIRCULAR PATH AROUND THE SUN.                      2400393
  C. NONE OF THE ABOVE.                                           2400393

************************************************************************

THE STUDENT CAN APPLY HIS KNOWLEDGE OF CONDITIONS ON                 0201
THE EARTH BY ESTIMATING CONDITIONS WHICH WOULD EXIST ON A
HYPOTHETICAL PLANET.  %4¤

     A HYPOTHETICAL PLANET *SPAR* IS THE NEWEST MEMBER OF            0055
OUR SOLAR SYSTEM.  SPAR IS 6,000 MILES IN DIAMETER AND ITS ORBIT
VARIES FROM 98 MILLION TO 108 MILLION MILES FROM THE SUN.  SPAR
ROTATES ON A PERPENDICULAR AXIS EVERY 22 1/2 HOURS.  ITS PERIOD
OF REVOLUTION ABOUT THE SUN IS 391 DAYS.

     BASED ON WHAT YOU KNOW ABOUT THE EARTH SELECT THE ANSWER
WHICH WOULD BEST DESCRIBE CONDITIONS ON SPAR.

HOW MUCH DAYLIGHT WOULD THERE BE, AT MOST POINTS, DURING A FULL      1299
DAY ON SPARO
  A. 15 HOURS
  B. 8 HOURS
  C. 14 HOURS
 *D. 11 1/4 HOURS

WHAT WOULD A 100 POUND EARTH BOY WEIGH ON SPARO                      1300
  A. APPROXIMATELY 100 POUNDS
  B. APPROXIMATELY 16 POUNDS
  C. APPROXIMATELY 120 POUNDS
 *D. APPROXIMATELY 65 POUNDS

SUNLIGHT WOULD SHINE ON THE NORTH POLE OF SPAR                       1301
  A. ABOUT 1/2 OF ITS YEAR.
  B. INFREQUENTLY IF EVER DURING THE YEAR.
 *C. 22 1/2 HOURS PER DAY - YEAR ROUND.
  D. DURING THE SUMMER ONLY.

TEMPERATURE CONDITIONS ON SPAR WOULD                                 130
 *A. BE RELATIVELY CONSTANT IN A GIVEN REGION.
  B. CHANGE DRAMATICALLY WITHIN A REGION.
  C. VARY FROM SEASON TO SEASON.
  D. WOULD BE MUCH COLDER IN WINTER THAN IT IS ON THE EARTH.

***********************************************************************

THE STUDENT CAN RECALL THE DEFINITION OF THE SOLAR SYSTEM BY         0025
SELECTING ITS BEST DESCRIPTION.  %1¤

CHOOSE THE CORRECT ANSWER.
```

THE SOLAR SYSTEM INCLUDES 97
A. THE PLANETS, THE SUN AND GRAVITY 0097
*B. THE SUN, THE PLANETS AND THE PLANETS MOONS 9
C. THE UNIVERSE, THE SUN AND THE PLANETS

****

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF THE MOON IN 0030
RELATION TO THE EARTH BY IDENTIFYING STATEMENTS WHICH GIVE THE
RELATIVE POSITION OF THE MOON TO THE EARTH AT CERTAIN TIMES AND
THE EFFECTS OF THE MOTION OF THE MOON AROUND THE EARTH. %4□

CHOOSE THE CORRECT ANSWER. 1

THE MOTION OF THE MOON AROUND THE EARTH EXPLAINS ALL OF THE 2400120
FOLLOWING, EXCEPT - 2400120
A. THE PHASES OF THE MOON. 2400120
*B. THE CHANGE OF CONSTELLATIONS THAT WE SEE. 2400120
C. ECLIPSES. 2400120
D. SHIFTING OF THE TIDES. 2400120

WE ON EARTH SEE A FULL MOON WHEN 2400121
A. THE MOON IS BETWEEN THE EARTH AND THE SUN. 2400121
B. THE SUN IS BETWEEN THE EARTH AND THE MOON. 2400121
*C. THE EARTH IS BETWEEN THE MOON AND THE SUN. 2400121

THE DARK SIDE OF THE MOON FACES THE EARTH WHEN 2400122
*A. THE MOON IS BETWEEN THE EARTH AND THE SUN. 2400122
B. THE SUN IS BETWEEN THE EARTH AND THE MOON. 2400122
C. THE EARTH IS BETWEEN THE MOON AND THE SUN. 2400122

WHICH OF THE FOLLOWING IS TRUEO 2400123
A. THE MOON REVOLVES AROUND THE SUN. 2400123
B. THE MOON CHANGES ITS SHAPE. 2400123
C. HOT GASES ON THE MOON GIVE OFF LIGHT. 2400123
*D. THE SAME SIDE OF THE MOON ALWAYS FACES THE EARTH. 2400123

****

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF THE MOON BY SELECTING 0031
FACTS ABOUT ITS SIZE, REVOLUTION, AND SURFACE FEATURES. %7□

CHOOSE THE CORRECT ANSWER. 1

THE MOON REVOLVES AROUND THE EARTH ONCE 2400124
*A. EACH 27 DAYS. 2400124
B. EACH SEASON.
C. EACH 365 DAYS. 2400124
D. A DAY.

THE MOON IS KEPT IN ITS ORBIT BECAUSE 240
A. IT IS SPINNING AT A HIGH SPEED. 2400125
B. IT IS SMALLER THAN THE EARTH. 2400125
*C. OF THE EARTH,S GRAVITY. 125
D. BOTH THE MOON AND EARTH HAVE GRAVITY. 2400125

THE EARTH,S NEAREST NEIGHBOR IN SPACE IS 2400126
A. VENUS. 2400126

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   B. MARS.                                                        2400126
   C. THE SUN.                                                     2400126
  *D. THE MOON.                                                    2400126

 WHICH OF THE FOLLOWING WAS *NOT* FOUND ON THE SURFACE OF THE         0127
 MOONO
   A. DEEP CRATERS                                                 2400127
   B. TOWERING MOUNTAIN RANGES                                     2400127
  *C. DEEP SEAS OF WATER                                           2400127
   D. RILLS OR CRACKS                                              2400127

 THE MOONS DIAMETER IS ....... AS BIG AS THE EARTH.S DIAMETER.        0128
   A. ONE-HALF                                                     2400128
  *B. ONE-FOURTH                                                   2400128
   C. TWICE                                                        2400128
   D. FOUR TIMES                                                   2400128

 THE MOON IS A                                                     2400129
  *A. SATELLITE.                                                   2400129
   B. PLANET.                                                      2400129
   C. STAR.                                                        2400129
   D. LIGHT.                                                       2400129

 TIDES OCCUR BECAUSE OF THE MOON.S                                 2400130
  *A. GRAVITY.                                                     2400130
   B. LIGHT.                                                       2400130
   C. MOTION.                                                      2400130
   D. PHASES.                                                      2400130

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 THE STUDENT WILL DEMONSTRATE KNOWLEDGE OF THE SOLAR SYSTEM BY        0088
 IDENTIFYING THE NAMES OF PLANETS.  %2¤

 CHOOSE THE CORRECT ANSWER.                                              1

 OF THE FOLLOWING, THE ONE CHOICE WHICH IS *NOT* A PLANET IS          0381
   A. EARTH.                                                       2400380
   B. PLUTO.                                                       2400380
   C. MARS.                                                        2400380
  *D. SUN.                                                         2400380

 OF THE FOLLOWING GROUPS, THE ONE WHICH CONTAINS *ONLY* PLANETS       0382
 IS                                                                2400381
   A. VENUS, MERCURY, KRYPTON.                                     2400381
   B. EARTH, JUPITER, MOON.                                        2400381
  *C. SATURN, URANUS, NEPTUNE.                                     2400381
   D. PLUTO, NEPTUNE, SUN.                                         2400381

*************************************************************************

 THE STUDENT CAN COMPREHEND THE ARRANGEMENT OF PLANETS IN OUR         0089
 SOLAR SYSTEM BY SELECTING THE POSITION OF A PARTICULAR PLANET.
 %4¤

 CHOOSE THE CORRECT ANSWER.                                              1

 THE PLANET CLOSEST TO THE SUN IS                                      383
   A. MARS.                                                        2400382
  B. EARTH.                                                           2400382
 *C. MERCURY.                                                         2400382
  D. VENUS.                                                           2400382

THE PLANET BETWEEN SATURN AND NEPTUNE IS                                 0384
 *A. URANUS.                                                          2400383
  B. PLUTO.                                                           2400383
  C. JUPITER.                                                         2400383
  D. EARTH.

THE THIRD PLANET FROM THE SUN IS                                          385
  A. MARS.                                                            2400384
  B. VENUS.                                                           2400384
 *C. EARTH.                                                           2400384
  D. JUPITER.                                                         2400384

THE FURTHEST KNOWN PLANET FROM THE SUN IS                                0386
  A. SATURN.                                                          2400385
  B. URANUS.                                                          2400385
  C. NEPTUNE.                                                         2400385
 *D. PLUTO.                                                           2400385

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GIVEN A PARAGRAPH ABOUT A PLANET, THE CHILD CAN ANALYZE IT BY            0095
STATING WHETHER LIFE DOES OR DOES NOT EXIST ON THAT PLANET.  %2□

CHOOSE THE CORRECT ANSWER.                                                  1

MERCURY IS A PLANET WHICH IS VERY CLOSE TO THE SUN.  IT REVOLVES         0395
                                                                      2400394
AND ROTATES AT THE SAME RATE, SO THAT THE SAME SIDE OF THE PLANET     2400394
                                                                      2400394
ALWAYS FACES THE SUN.  THE TEMPERATURE ON THIS SIDE IS ABOUT 3000     2400394
                                                                      2400394
DEGREES F. WHILE ON THE OTHER SIDE IT IS ABOUT -2000 DEGREES F.
                                                                      2400394
FROM THE PARAGRAPH WE CAN DEDUCE THAT                                 2400394
                                                                      2400394
  A. LIFE PROBABLY EXISTS ON MERCURY.                                 2400394
 *B. LIFE PROBABLY DOESN,T EXIST ON MERCURY.
  C. NOT ENOUGH INFORMATION TO DECIDE IF LIFE EXISTS.                 2400394

SATURN IS THE SIXTH PLANET FROM THE SUN.  IT HAS MANY MOONS              0396
                                                                      2400395
AROUND IT.  SATURN IS THE ONLY PLANET THAT HAS RINGS AROUND IT.       2400395
                                                                      2400395
SATURN IS THE SECOND LARGEST PLANET IN OUR SOLAR SYSTEM.              2400395
                                                                      2400395
FROM THIS PARAGRAPH WE CAN DEDUCE THAT                                2400395
                                                                      2400395
  A. LIFE PROBABLY EXISTS ON SATURN.                                  2400395
  B. LIFE PROBABLY DOESNT EXIST ON SATURN.                            2400395
 *C. NOT ENOUGH INFORMATION TO DECIDE IF LIFE EXISTS.                 2400395

******************************************************************************

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF THE NAMES OF THE             0096
FIRST SEVEN MERCURY ASTONAUTS BY SELECTING THE LIST THAT CONTAINS
```

ONLY THEIR NAMES. %2□

CHOOSE THE CORRECT ANSWER. 1

FROM THE FOLLOWING GROUPS, CHOOSE THE ONE GROUP THAT CONTAINS THE 0397
NAMES OF *ONLY* THE FIRST ASTRONAUTS.
A. BORMAN, GRISSOM, GLENN, SHEPHARD 2400396
B. ARMSTRONG, COOPER, SCHIRRA, ALDRIN 2400396
C. LOVETT, ARMSTRONG, GLENN, CARPENTER 2400396
*D. GLENN, COOPER, CARPENTER, SCHIRRA 2400396

OF THE FOLLOWING ASTRONAUTS, THE ONE WHO *NEVER* FLEW IN A 0398
MERCURY SPACE CAPSULE WAS 2400397
A. COOPER. 2400397
*B. SLAYTON. 2400397
C. CARPENTER. 2400397
D. SCHIRRA. 2400397

****

THE CHILD CAN COMPREHEND THE DIFFERENCES BETWEEN THE MERCURY AND 0097
GEMINI SPACE PROGRAMS BY SELECTING THE MAJOR CHARACTERISTICS
OF EACH. %2□

CHOOSE THE CORRECT ANSWER. 1

WHICH OF THE FOLLOWING DID *NOT* CHANGE FROM THE MERCURY TO THE 0399
GEMINI SPACE PROGRAMO
A. THE NUMBER OF MEN IN THE CAPSULE. 2400398
B. THE BOOSTER ROCKET. 2400398
C. THE LENGTH OF TIME IN SPACE. 2400398
D. THE ENVIRONMENTAL CONTROL SYSTEM. 2400398
*E. THE COMMUNICATION SYSTEM. 2400398

WHICH OF THE FOLLOWING DID *NOT* CHANGE FROM THE MERCURY TO THE 0400
GEMINI SPACE PROGRAMO
A. HAVING A COMPUTER IN THE SPACE CAPSULE. 2400399
B. HAVING THE ABILITY TO CHANGE ORBIT. 2400399
*C. EATING THE SAME TYPE FOOD. 2400399
D. BEING ABLE TO RENDEZVOUS AND DOCK WITH A TARGET. 2400399
E. BEING ABLE TO CONTROL RE-ENTRY INTO ATMOSPHERE. 2400399

****

AFTER STUDYING THE PROBLEMS OF TRAVELING THROUGH SPACE, THE CHILD 0099
CAN EVALUATE STATEMENTS ON THE VARIOUS TECHNIQUES OF TRAVELING
THROUGH SPACE BY CITING THE MOST PROBABLE JUSTIFICATIONS. %3□

READ THE FOLLOWING PARAGRAPH AND THEN ANSWER THE QUESTIONS BELOW. 0014

IN 1962, AFTER PRESIDENT KENNEDY,S DECLARATION TO LAND A MAN ON THE MOON AND RETURN HIM SAFELY TO EARTH, THE OPERATIONAL HEADS OF NASA DEVELOPED THREE PLANS TO MEET THIS OBJECTIVE. ONE CALLED FOR A DIRECT ATTEMPT TO LAND ON THE MOON, WHERE ONE SHIP WOULD BLAST OFF FROM THE EARTH, LAND ON THE MOON, AND THEN RETURN TO EARTH. A SECOND PLAN CALLED FOR A SHIP TO BLAST OFF FROM THE EARTH, ORBIT THE EARTH, AND HAVE A SECOND SHIP %PART OF THE FIRST□ LEAVE EARTH ORBIT, GO TO THE MOON, LAND, AND THEN RETURN TO EARTH LEAVING A SPACE STATION IN EARTH ORBIT. THE THIRD

```
PLAN CALLED FOR A SHIP TO BLAST OFF FROM EARTH, GO INTO LUNAR
ORBIT, HAVE ANOTHER SHIP %PART OF THE FIRST□ UNDOCK, LAND ON THE
MOON, RETURN TO THE MOTHER SHIP, AND THEN RETURN TO EARTH.

OF THE FOLLOWING ITEMS, THE ONE WHICH COULD JUSTIFY THE                0402
ABANDONMENT OF PLAN ONE WAS                                         2400401
  A. THE GRAVITY ON THE MOON.                                       2400401
 *B. THE GRAVITY ON THE EARTH.                                      2400401
  C. THE LACK OF GRAVITY IN SPACE.                                  2400401
  D. NONE OF THE ABOVE.                                             2400401

OF THE FOLLOWING ALTERNATIVES, THE ONE WHICH COULD JUSTIFY THE         0403
ABANDONMENT OF PLAN TWO WAS                                         2400402
  A. THE POSITION OF THE SPACE STATION IN RELATION TO THE MOON.     2400402
  B. THE TYPE OF LANDING SYSTEM REQUIRED.                           2400402
 *C. TOO MANY NEW TECHNIQUES TO DEVELOP IN SPACE TRAVEL.            2400402
  D. NONE OF THE ABOVE.                                             2400402

OF THE FOLLOWING ALTERNATIVES, THE ONE WHICH DID NOT AFFECT THE        0404
CHOOSING OF PLAN THREE WAS
  A. THE LOW COST OF THE METHOD.                                    2400403
  B. THE SPARSENESS OF NEW TECHNIQUES TO BE LEARNED.                2400403
 *C. THE DISTANCE BETWEEN THE EARTH AND THE MOON.                   2400403
  D. NONE OF THE ABOVE.                                             2400403

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GIVEN DEFINITIONS OF CENTRIFUGAL FORCE AND GRAVITY, THE CHILD CAN      0103
APPLY THESE DEFINITIONS BY EXPLAINING WHY A SATELLITE REMAINS IN
ORBIT.  %1□

CHOOSE THE CORRECT ANSWER.                                                1

OF THE FOLLOWING, THE ONE WHICH BEST EXPLAINS WHY A SATELLITE          0410
REMAINS IN ORBIT IS                                                 2400409
  A. THE FORCE OF GRAVITY AND THE CENTRIPETAL FORCE BALANCE
     EACH OTHER WITH THE OBJECT REMAINING IN ORBIT AS A RESULT      2400409
     OF THIS.                                                       2400409
 *B. CENTRIFUGAL FORCE FORCES AN OBJECT OUT AND GRAVITY FORCES      2400409
     IT DOWN.  REPEATING THIS OVER AND OVER AGAIN KEEPS THE         2400409
     OBJECT IN ORBIT AROUND A BODY.                                 2400409
  C. BOTH FORCES, CENTRIFUGAL AND GRAVITATIONAL PRODUCE CIRCULAR     2400409
     MOTION WHICH KEEPS AN OBJECT IN ORBIT AROUND A BODY.           2400409

***************************************************************************


                             MECHANICS AND HEAT


THE STUDENT WILL RECALL THE DEFINITION OF GRAVITY BY SELECTING IT      0032
FROM A LIST.  %1□

CHOOSE THE CORRECT ANSWER.                                                1

THE PULL OF THE EARTH IS CALLED                                     2400131
  A. MAGNETISM.                                                     2400131
 *B. GRAVITY.                                                       2400131
```

C. ORBITS. 2400131
D. TIDES. 2400131

****

THE STUDENT CAN APPLY THE CONCEPT THAT PITCH DEPENDS ON SPEED OF VIBRATION - THE FASTER THE VIBRATIONS, THE HIGHER THE PITCH TO SITUATIONS INVOLVING THE VIBRATIONS THROUGH CERTAIN MEDIUMS. %5¤ 0034

CHOOSE THE CORRECT ANSWER. 1

THE THICKEST STRING ON A GUITAR PLAYS 2400136
*A. THE LOWEST PITCH BECAUSE A THICK STRING VIBRATES MORE 2400136
SLOWLY. 2400136
B. THE LOWEST PITCH BECAUSE A THICK STRING VIBRATES QUICKLY. 2400136
C. THE HIGHEST PITCH BECAUSE A THICK STRING VIBRATES MORE 2400136
SLOWLY. 2400136
D. THE HIGHEST PITCH BECAUSE A THICK STRING VIBRATES FASTER. 2400136

WHEN YOU HUM A HIGH NOTE, YOUR VOCAL CHORDS ARE VIBRATING 2400137
THAN WHEN YOU HUM A LOW NOTE. 2400137
*A. FASTER 2400137
B. SLOWER 2400137
C. LONGER 2400137
D. HARDER 2400137

IF YOU STRIKE FIRST A QUART MILK BOTTLE AND THEN A PINT MILK 2400138
BOTTLE WITH A STICK, WHAT HAPPENSO 2400138
*A. THE PINT BOTTLE MAKES A HIGHER PITCH. 2400138
B. THE PINT BOTTLE MAKES A LOWER PITCH. 2400138
C. THE QUART BOTTLE MAKES A HIGHER PITCH. 2400138
D. BOTH BOTTLES MAKE THE SAME PITCH. 2400138

A VIOLINIST PLAYS A NOTE. IT IS NOT THE CORRECT PITCH SO HE IS 2400140
OUT OF TUNE. HE TIGHTENS THE STRING. NOW THE PITCH IS
*A. HIGHER. 2400140
B. LOWER. 2400140
C. THE SAME. 2400140
D. RIGHT. 2400140

WHICH OF THESE DOES *NOT* AFFECT PITCHO 2400141
A. LENGTH 2400141
*B. LOUDNESS 2400141
C. TENSION 2400141
D. THICKNESS 2400141

****

THE STUDENT CAN APPLY THE MOLECULAR THEORY %MATTER IS COMPOSED OF MOLECULES WHICH ARE ALWAYS IN MOTION¤ BY SELECTING STATEMENTS WHICH EXPLAIN AND PREDICT THE BEHAVIOR OF MATTER. %7¤ 0035

CHOOSE THE CORRECT ANSWER. 1

IN A MERCURY THERMOMETER THE MERCURY RISES WHEN THE TEMPERATURE 2400142
RISES BECAUSE THE MOLECULES OF MERCURY HAVE 2400142
*A. SPREAD OUT. 2400142
B. INCREASED IN NUMBER. 2400142
C. EXPANDED. 2400142

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  D. GOTTEN LARGER.                                                  2400142

A STEEL BRIDGE HAS EXPANSION JOINTS                                  2400143
  A. TO MAKE THE BRIDGE PRETTIER.                                    2400143
 *B. BECAUSE THE LENGTH OF THE BRIDGE CHANGES.                       2400143
  C. TO MAKE THE BRIDGE EASIER TO RAISE.                             2400143
  D. TO PREVENT TRAFFIC JAMS WHEN THERE IS A LOT OF TRAFFIC.         2400143

WHEN IS AN ASPHALT ROAD MOST LIKELY TO BUCKLEO                       2400144
  A. IN THE WINTER                                                   2400144
 *B. IN THE SUMMER                                                   2400144
  C. AT NIGHT                                                        2400144
  D. DURING RUSH HOUR                                                2400144

A STEEL BALL CAN BE PASSED VERY EASILY THROUGH A STEEL RING.         2400145
THE BALL IS PLACED IN A FLAME AND HEATED.  NOW THE BALL CANNOT BE    2400145
PASSED THROUGH THE RING.  WHAT HAS HAPPENEDO                         2400145
  A. THE MOLECULES IN THE BALL MOVED FASTER CAUSING THE BALL TO      2400145
     CONTRACT.                                                       2400145
 *B. THE MOLECULES IN THE BALL OCCUPY A LARGER SPACE THAN THEY
     DID BEFORE CAUSING THE BALL TO EXPAND.
  C. THE MOLECULES IN THE BALL GOT BIGGER CAUSING THE BALL TO        2400145
     EXPAND.                                                         2400145
  D. THE HEAT PRODUCED MORE MOLECULES CAUSING THE BALL TO            2400145
     EXPAND.                                                         2400145

IF THE BALL IS COOLED, IT                                            2400146
  A. COULD FREEZE BECAUSE ITS MOLECULES WOULD CONTRACT.              2400146
 *B. COULD PASS THROUGH THE RING BECAUSE ITS MOLECULES HAVE GONE
     BACK TO OCCUPYING THEIR ORIGINAL SPACE.
  C. STILL COULD NOT PASS THROUGH THE RING BECAUSE THE MOLECULES     2400146
     HAVE GOTTEN TOO LARGE.                                          2400146
  D. WOULD LOSE SOME OF ITS MOLECULES MAKING IT SMALL ENOUGH TO      2400146
     PASS THROUGH THE RING.                                          2400146

SUPPOSE THAT BOTH THE STEEL BALL AND THE STEEL RING WERE HEATED      2400147
AT THE SAME TIME.  WHAT WOULD HAPPENO                                2400147
  A. THE BALL COULD NOT PASS THROUGH THE RING BECAUSE THE BALL IS    2400147
     SOLID AND HAS MORE MOLECULES.                                   2400147
  B. THE BALL COULD PASS THROUGH THE RING BECAUSE THE RING HAS       2400147
     MORE SPACE IN WHICH TO EXPAND.                                  2400147
  C. THE BALL COULD PASS THROUGH THE RING BECAUSE BOTH WOULD         2400147
     CONTRACT.                                                       2400147
 *D. THE BALL COULD PASS THROUGH THE RING BECAUSE BOTH WOULD         2400147
     EXPAND.                                                         2400147

A BALLOON FILLED WITH AIR IS TAKEN FROM A WARM ROOM AND PLACED IN    2400148
A COOLER ROOM.  THE BALLOON WILL                                     2400148
 *A. GET SMALLER.                                                    2400148
  B. GET LARGER.                                                     2400148
  C. BREAK.                                                          2400148
  D. STAY THE SAME SIZE.                                             2400148

*************************************************************************

 HE STUDENT CAN RECALL THE DEFINITION OF FRICTION BY SELECTING IT    0042
FROM A LIST.  %1n

CHOOSE THE CORRECT ANSWER.                                              1
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A FORCE AT THE SURFACE OF AN OBJECT THAT MAKES IT HARD TO MOVE       2400188
ANOTHER OBJECT ACROSS IT IS                                          2400188
  A. LUBRICATION.                                                    2400188
  B. PRESSURE.                                                       2400188
  C. GRAVITY.                                                        2400188
 *D. FRICTION.                                                       2400188
                                                                     2400188

********************************************************************************

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF FRICTION BY            0043
SELECTING THE PROPERTIES OF FRICTION THAT ARE PRESENT IN VARIOUS
GIVEN SITUATIONS.  %8□

CHOOSE THE CORRECT ANSWER.
                                                                           1
A DOOR OPENS WITH DIFFICULTY.  IT ALSO SQUEAKS.  WHAT FORCE IS       2400189
AT WORKO                                                             2400189
 *A. FRICTION                                                        2400189
  B. GRAVITY                                                         2400189
  C. PRESSURE                                                        2400189
  D. TENSION                                                         2400189
                                                                     2400189

FRICTION MAKES IT       TO MOVE THINGS.
  A. EASIER                                                          2400190
 *B. HARDER                                                          2400190
  C. NICER                                                           2400190
  D. EFFORTLESS                                                      2400190
                                                                     2400190

SLIDING FRICTION BETWEEN TWO SURFACES CAN BE REDUCED BY
  A. INCREASING THE PRESSURE ON BOTH SURFACES.                       2400191
  B. SMOOTHING AND POLISHING BOTH SURFACES.                          2400191
  C. LUBRICATING THE SURFACES.                                       2400191
 *D. B AND C.                                                        2400191
  E. A AND C.                                                        2400191
                                                                     2400191

WHICH ONE OF THE FOLLOWING SURFACES WILL OFFER THE MOST FRICTIONO    2400192
  A. WAXED PAPER                                                     2400192
  B. ICE                                                             2400192
  C. BLOTTER                                                         2400192
 *D. SAND PAPER                                                      2400192
                                                                     2400192

A NAIL IS DRIVEN INTO A BLOCK OF WOOD.  IT IS PULLED OUT WITH A
CLAW HAMMER.  FRICTION MAKES THE NAIL                                2400193
 *A. FEEL WARM.                                                      2400193
  B. SLIGHTLY BENT.                                                  2400193
  C. NO LONGER USABLE.
  D. GET LONGER.
                                                                     2400193

WHICH ONE OF THE FOLLOWING SURFACES WOULD BEST DECREASE FRICTIONO    2400194
  A. LINOLEUM FLOOR                                                  2400194
  B. CARPETED FLOOR                                                  2400194
  C. CEMENT FLOOR                                                    2400194
 *D. WAXED FLOOR                                                     2400194
                                                                     2400194

IN WHICH OF THE FOLLOWING SITUATIONS IS THE FORCE OF FRICTION A
HINDERANCEO                                                             0195
  A. TIRE TREADS ON A CAR                                            2400195
  B. WRITING WITH A PENCIL                                           2400195
  C. BICYCLE BRAKES                                                  2400195
  D. SCREWING A NUT ON A BOLT                                        2400195
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THERE IS FRICTION BETWEEN WHEELS AND AXLES. THE HEAVIER THE 2400196
LOAD, THE MORE WEAR THERE IS ON THE AXLE.• WHICH OF THE FOLLOW- 2400196
ING WOULD *NOT* HELP TO LESSEN THE FRICTIONO 2400196
  A. COVER THE TWO SURFACES WITH GREASE 2400196
 *B. MAKE THE HOLE IN THE WHEEL LARGER 2400196
  C. MAKE THE WHEEL HOLES AND THE AXLE SMOOTHER 2400196
  D. MAKE THE LOAD LIGHTER 2400196
  E. USE BALL BEARINGS 2400196

****

THE STUDENT WILL DEMONSTRATE A KNOWLEDGE OF THE STRUCTURE OF THE 0054
ATOM BY IDENTIFYING ITS COMPOSITION AND CHARACTERISTICS. %5□

CHOOSE THE CORRECT ANSWER. 1

THE BASIC PARTS OF AN ATOM ARE 2400248
  A. ELECTRON, PROTON, NUCLEUS. 2400248
  B. NUCLEUS, ORBIT, PROTON. 2400248
 *C. ELECTRON, NEUTRON, PROTON. 2400248
  D. ELECTRON, PARTICLE, NEUTRON. 2400248

THE NUCLEUS OF AN ATOM CONTAINS 2400249
  A. PROTONS AND ELECTRONS. 2400249
  B. NEUTRONS AND NEGATIVES. 2400249
  C. PROTONS, ELECTONS AND NEUTRONS. 2400249
 *D. PROTONS AND NEUTRONS. 2400249

IN ATOMIC REACTIONS AN ELECTRON AND A PROTON SOMETIMES TAKE THE 2400250
PLACE OF A 2400250
 *A. NEUTRON. 2400250
  B. NUCLEUS. 2400250
  C. NEGATIVE. 2400250
  D. MOLECULE. 2400250

WHICH OF THE FOLLOWING IS GROUPED TOGETHER IN SHELLS OR ORBITSO 0251
  A. PROTONS 2400251
  B. NEUTRONS 2400251
 *C. ELECTRONS 2400251
  D. ATOMS 2400251
  E. MOLECULES 2400251

WHICH OF THE FOLLOWING STATEMENTS IS *NOT* CORRECTO 2400252
 *A. THE NEUTRON HAS A NEGATIVE CHARGE. 2400252
  B. THE NEUTRON HAS NO CHARGE.
  C. THE PROTON HAS A POSITIVE CHARGE. 2400252
  D. THE ELECTRON HAS A NEGATIVE CHARGE. 2400252

****

THE PUPIL WILL DEMONSTRATE KNOWLEDGE OF THE SCIENTIFIC DEFINITION 0059
OF ENERGY BY SELECTING IT FROM A LIST. %1□

CHOOSE THE CORRECT ANSWER. 1

SCIENTISTS DEFINE THE ABILITY TO DO WORK AS 2400260
  A. THINKING. 2400260

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  B. TALENT.
 *C. ENERGY.                                                        2400260
  D. CURRENT.                                                       2400260
  E. STATIC.                                                        2400260
                                                                    2400260

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THE STUDENT CAN DISTINGUISH BETWEEN POTENTIAL ENERGY %STORED¤ AND
KINETIC ENERGY %ENERGY OF MOTION¤ BY SELECTING EXAMPLES OF EACH.      0062
%4¤

CHOOSE THE CORRECT ANSWER.
                                                                          1
ALL OF THE FOLLOWING HAVE POTENTIAL ENERGY *EXCEPT*
  A. DRY CELL.                                                         0264
  B. COAL.                                                          2400263
 *C. WIND.                                                          2400263
  D. WOUND SPRING.                                                  2400263
                                                                    2400263
WHICH OF THE FOLLOWING ITEMS IS NOT AN EXAMPLE OF KINETIC
ENERGY0                                                                0265
  A. ROCKS ROLLING DOWN A HILL.                                     2400264
 *B. AN UNEXPLODED STICK OF DYNAMITE.                               2400264
  C. A FLY BALL TO THE LEFT FIELD.                                  2400264
  D. WATER FLOWING OVER A DAM.                                      2400264
                                                                    2400264
WHEN AN OBJECT HAS THE CAPACITY TO DO WORK, IT HAS      ENERGY.
 *A. POTENTIAL                                                         0266
  B. MECHANICAL                                                     2400265
  C. CONDUCTIVE                                                     2400265
  D. KINETIC                                                        2400265
                                                                    2400265
THE ENERGY OF MOTION IS
  A. MOLECULAR.                                                         267
  B. MOVEMENT.                                                      2400266
 *C. KINETIC.                                                       2400266
  D. POTENTIAL.                                                     2400266
                                                                    2400266

*************************************************************************

THE STUDENT CAN APPLY THE CONCEPTS THAT EVAPORATION REQUIRES HEAT
ENERGY AND THAT CONDENSATION RELEASES HEAT ENERGY BY SELECTING        0069
ILLUSTRATIONS OF THIS.  %1¤

CHOOSE THE CORRECT ANSWER.
                                                                          1
WHICH OF THE FOLLOWING CAN BE EXPLAINED BY THE CONCEPT, CONDEN-
SATION RELEASES HEAT ENERGY0                                           0291
  A. WATER CAN BE BOILED IN A PAPER CUP.                            2400290
  B. PERSPIRING HELPS TO KEEP US COOL.                              2400290
 *C. A JUG OF COLD LEMONADE GETS WARM WHEN LEFT OUT IN              2400290
     THE SUN.                                                       2400290
  D. A FOG  LIFTS  AS THE MORNING SUN SHINES.                       2400290
                                                                    2400290

*************************************************************************

THE STUDENT CAN APPLY THE CONCEPT THAT A LOSS OR GAIN OF HEAT
AFFECTS MOLECULAR MOTION BY CHOOSING AN EXAMPLE THAT ILLUSTRATES      0070
```

THIS CONCEPT. %1¤

CHOOSE THE CORRECT ANSWER. 1

WHICH STATEMENT IS TRUEO 292
A. THE SAME AMOUNT OF HEAT IS RELEASED WHEN WATER CHANGES TO 2400291
STEAM AS WHEN STEAM CONDENSES. 2400291
*B. STEAM WILL CAUSE A BURN MORE THAN BOILING WATER.
C. MOLECULES OF STEAM MOVE SLOWER THAN MOLECULES OF BOILING 2400291
WATER. 2400291
D. AS ICE IS HEATED, ITS MOLECULES MOVE AT THE SAME SPEED. 2400291

****

THE STUDENT CAN APPLY SIR ISAAC NEWTONS LAWS OF MOTION BY 0078
CHOOSING THE LAW WHICH DESCRIBES AN EMPIRICAL SITUATION. %5¤

SELECT ONE OF SIR ISAAC NEWTON,S THREE LAWS OF MOTION. 0007
A. FIRST
B. SECOND
C. THIRD
D. ALL OF ABOVE

A JET PROPELLED TOY AUTOMOBILE ILLUSTRATES WHAT LAW OF MOTIONO *C 0335

A BALL ROLLED ACROSS A TABLE AND THEN COMES TO A STOP ILLUSTRATES 0336
WHAT LAWO *A 336

STEPPING FROM A ROWBOAT AND THE BOAT SLIPS BACKWARD ILLUSTRATES 0337
WHAT LAWO *C 337

PUSHING A PIANO ACROSS THE ROOM ILLUSTRATES WHAT LAWO *B 0338

OBJECTS THAT HAVE MAGNETIC ATTRACTION TO EACH OTHER ILLUSTRATE 0339
WHAT LAWO *B 339

****

THE STUDENT WILL KNOW THE MEANINGS OF LITMUS PAPER, ACID, BASE, 0082
AND NEUTRAL SUBSTANCE BY SELECTING THE CORRECT DEFINITIONS FOR
THESE TERMS. %4¤

CHOOSE THE CORRECT ANSWER. 1

THE DEFINITION OF LITMUS PAPER IS 368
A. RED CONSTRUCTION PAPER THAT BECOMES BLUE IN WATER. 2400367
*B. PLANT COMPOUND EXTRACTED FROM LICHENS TO INDICATE ACID OR
BASE.
C. BLUE CONSTRUCTION PAPER THAT BECOMES RED IN WATER. 2400367
D. NONE OF THE ABOVE. 2400367

AN ACID IS ANY OF A GROUP OF CHEMICAL COMPOUNDS THAT 0369
*A. TASTES SOUR AND TURNS BLUE LITMUS PAPER RED.
B. TASTES SWEET AND TURNS RED LITMUS PAPER BLUE.
C. IS TOO STRONG TO STORE IN GLASS BOTTLES. 2400368

A BASE IS ANY OF A GROUP OF CHEMICAL COMPOUNDS THAT 0370
A. ALWAYS CONTAINS AN AMOUNT OF AMMONIA IN IT. 2400369
B. IS COLORLESS AND COMES ONLY IN LIQUID FORM. 2400369

*C. FEELS SLIPPERY AND TURNS RED LITMUS PAPER BLUE. 2400369
D. NONE OF THE ABOVE. 2400369

A NEUTRAL SUBSTANCE IS ANY OF A GROUP OF CHEMICAL COMPOUNDS THAT 0371
*A. IS NEITHER AN ACID NOR A BASE.
B. REACTS WITH BOTH BLUE AND RED LITMUS PAPER.
C. NEITHER OF THE ABOVE

****

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF ACIDS AND BASES 0083
BY SELECTING THE EXAMPLES OF EITHER ACIDS OR BASES FROM GROUPS OF
CHEMICAL COMPOUNDS. %2□

CHOOSE THE CORRECT ANSWER.
1

OF THE FOLLOWING GROUPS OF CHEMICAL COMPOUNDS, THE *ONE* THAT 0372
CONTAINS *ONLY* ACIDS IS 2400371
A. HYDROCHLORIC, SULFURIC, AMMONIA. 2400371
B. AMMONIA, HYDROCHLORIC, TANNIC. 2400371
*C. HYDROCHLORIC, SULFURIC, TANNIC. 2400371
D. AMMONIA, SULFURIC, TANNIC. 2400371

OF THE FOLLOWING GROUPS OF CHEMICAL COMPOUNDS, THE *ONE* THAT 0373
CONTAINS *ONLY* BASES IS 2400372
A. AMMONIA, WATER, BLEACH. 2400372
*B. AMMONIA, BLEACH, POTASSIUM HYDROXIDE. 2400372
C. WATER, BLEACH, POTASSIUM HYDROXIDE. 2400372
D. AMMONIA, WATER, POTASSIUM HYDROXIDE. 2400372

****

THE STUDENT WILL EVALUATE STATEMENTS PERTAINING TO ACIDS, BASES, 0085
AND NEUTRAL SUBSTANCES AND SELECT THE STATEMENT THAT IS VALID IN
TERMS OF THE DEFINITION FOR A NEUTRAL SUBSTANCE. %1□

READ THE FOLLOWING STATEMENT AND DECIDE WHICH OF THE FOUR CHOICES 0011
THAT FOLLOWS IS VALID.

A NEUTRAL SUBSTANCE IS NOT AN ACID OR A BASE WHILE AT THE SAME 0377
TIME IT IS BOTH AN ACID AND A BASE.
*A. THIS STATEMENT IS TRUE BECAUSE WHEN TESTED WITH LITMUS PAPER 2400376
AND PH, THE NEUTRALITY OF THE SUBSTANCE WILL BE PROVEN 2400376
EVEN THOUGH THE SUBSTANCE WAS MADE BY COMBINING EQUAL 2400376
QUANTITIES OF AN ACID AND A BASE. 2400376
B. THIS STATEMENT IS FALSE BECAUSE A SUBSTANCE CAN BE ONLY ONE 2400376
THING, IN THIS CASE NEUTRAL. IT CAN NEVER BE TWO THINGS AT 2400376
THE SAME TIME, AN ACID OR A BASE. 2400376
C. THIS STATEMENT IS TRUE BECAUSE ACIDS, BASES AND NEUTRAL 2400376
SUBSTANCES ARE ALL CHEMICAL COMPOUNDS AND CAN EITHER BE 2400376
COMBINED OR SEPARATED AT ANY TIME. 2400376
D. THIS STATEMENT IS FALSE BECAUSE ACIDS AND BASES WILL NOT 2400376
READILY FORM WHEN COMBINED UNLESS THE ACID AND BASE ARE BOTH 2400376
EQUALLY STRONG NEUTRAL SUBSTANCES OR EQUALLY WEAK. 2400376

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AFTER HAVING STUDIED GRAVITY THE CHILD CAN ANALYZE STATEMENTS ON 0098

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THE EFFECTS OF GRAVITY ON VARIOUS BODIES, BY CHOOSING THE BEST
EXPLANATION FOR A GIVEN PHENOMEN.  %1¤

AFTER READING THE FOLLOWING STATEMENT, DECIDE WHICH OF THE             0013
CHOICES IS THE BEST EXPLANATION.

 WITH ALL THINGS BEING EQUAL, A ROCKET CAN BE BLASTED OFF FROM          0401
THE MOON WITH SIX TIMES THE WEIGHT OF A ROCKET BEING BLASTED OFF     2400400
ON EARTH.                                                            2400400
  A. THIS IS EXPLAINED BY THE FACT THAT THE MOON IS SO FAR AWAY      2400400
     FROM THE EARTH.                                                 2400400
 *B. THIS IS EXPLAINED BY THE FACT THAT THE GRAVITATIONAL FORCE      2400400
     ON THE MOON IS LESS THAN THAT ON THE EARTH.
  C. THIS IS EXPLAINED BY THE FACT THAT THE MOON IS MOVING FASTER    2400400
     THAN THE EARTH AND THIS SPEED HELPS LIFT MORE WEIGHT INTO       2400400
     SPACE.                                                          2400400
  D. THIS IS EXPLANED BY THE FACT THAT THE GRAVITATIONAL FORCE IS
     GREATER ON THE MOON THAN IT IS ON EARTH.

************************************************************************

THE STUDENT CAN DEMONSTRATE AN UNDERSTANDING OF ROCKET ENGINES         0101
AND JET ENGINES BY CHOOSING THE MAJOR DIFFERENCES IN THE TWO. %2¤

CHOOSE THE CORRECT ANSWER.                                                1

OF THE FOLLOWING, THE ONE WHICH IS A MAJOR DIFFERENCE BETWEEN          0406
A ROCKET AND A JET ENGINE IS                                         2400405
  A. THE AMOUNT OF FUEL USED IN REACHING OUTER SPACE.                2400405
 *B. THE ROCKET ENGINE DOESN,T NEED AIR FROM THE OUTSIDE.
  C. A ROCKET USES ONLY SOLID FUEL TO BLAST OFF.                     2400405
  D. NONE OF THE ABOVE.                                              2400405

OF THE FOLLOWING, THE ONE WHICH IS A MAJOR DIFFERENCE BETWEEN          0407
A ROCKET AND A JET ENGINE IS                                         2400406
 *A. THE AMOUNT OF THRUST POSSIBLE.                                  2400406
  B. THE DESIGN OF THE COMBUSTION CHAMBER.                           2400406
  C. THE OXIDIZER USED.                                              2400406
  D. NONE OF THE ABOVE.                                              2400406

************************************************************************

THE CHILD WILL DEMONSTRATE AN UNDERSTANDING OF NEWTONS FIRST LAW       0105
OF MOTION BY CHOOSING FROM A LIST THE BEST EXAMPLE OF THIS
PRINCIPLE.  %1¤

CHOOSE THE CORRECT ANSWER.                                                1

OF THE FOLLOWING ITEMS, THE ONE WHICH BEST ILLUSTRATES NEWTONS         0412
FIRST LAW OF MOTION IS                                               2400411
 *A. PULLING A TABLECLOTH OFF A TABLE WITH DISHES REMAINING ON       2400411
     THE TABLE.                                                      2400411
  B. TWIRLING A HOOLA-HOOP AROUND YOUR WAIST FOR THREE MINUTES.      2400411
  C. MAKING A SHARP TURN IN AN AUTOMOBILE.                           2400411
  D. NONE OF THE ABOVE.                                              2400411

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THE STUDENT WILL KNOW THE MEANING OF DENSITY BY SELECTING THE CORRECT DEFINITION FOR IT. %1¤ 0126

CHOOSE THE CORRECT ANSWER. 1

DENSITY IS DEFINED AS 2400471
A. THE BUOYANCY OF A SUBSTANCE. 2400471
B. THE THICKNESS OF THE AIR OVER THE OCEAN. 2400471
*C. THE MASS OF A SUBSTANCE PER UNIT VOLUME. 2400471

****

THE STUDENT WILL COMPREHEND THE CHARACTERISTICS OF WATER PRESSURE BY CHOOSING THOSE DESCRIPTIONS OF WATER PRESSURE FROM A LIST. %3¤ 0128

CHOOSE THE CORRECT ANSWER. 1

OF THE FOLLOWING, THE ONE WHICH IS CHARACTERISTIC OF WATER 2400474
PRESSURE IS 2400474
*A. WATER PRESSURE IS THE SAME IN ALL DIRECTIONS. 2400474
B. WATER PRESSURE IS DIFFERENT IN ALL DIRECTIONS. 2400474
C. WATER PRESSURE DECREASES WITH DISTANCE.

OF THE FOLLOWING, THE ONE WHICH IS CHARACTERISTIC OF WATER 2400475
PRESSURE IS 2400475
A. WATER PRESSURE STAYS CONSTANT IN ANY DEPTH. 2400475
*B. WATER PRESSURE INCREASES WITH DEPTH. 2400475
C. WATER PRESSURE DECREASES WITH DEPTH. 2400475

OF THE FOLLOWING, THE ONE WHICH IS CHARACTERISTIC OF WATER 2400476
PRESSURE IS 2400476
*A. LIQUIDS EXERT PRESSURE AT DIFFERENT LEVELS. 2400476
B. LIQUIDS DONT EXERT PRESSURE AT ANY LEVEL. 2400476
C. LIQUID EXERT CONSTANT PRESSURE AT ALL DEPTHS. 2400476

****

THE STUDENT CAN APPLY KNOWLEDGE OF THE EFFECTS OF TEMPERATURE ON THE KINETIC ENERGY OF MOLECULES BY IDENTIFYING THE EFFECTS OF CHANGES IN TEMPERATURE. %3¤ 0196

CHOOSE THE CORRECT ANSWER. 1

ON A RECENT AUTOMOBILE TRIP JUST PRIOR TO ENTERING THE DESERT AT NOON, A SERVICE STATION ATTENDANT SUGGESTED THAT WE CHECK THE PRESSURE OF OUR TIRES. HIS CONCERN WAS 1284
A. THERE ARE FEWER MOLECULES IN DESERT AIR.
B. THE MOLECULES IN THE AIR WILL MOVE MORE SLOWLY CAUSING THE PRESSURE TO BE REDUCED.
*C. THE MOLECULES IN THE AIR WILL MOVE MORE RAPIDLY CAUSING THE PRESSURE TO INCREASE.
D. MOLECULES ARE CLOSER TOGETHER DURING THE HOTTEST PART OF THE DAY.

AN AUTOMOBILE RIDE MAY BECOME ROUGHER AS SPEED AND DISTANCE INCREASES BECAUSE 1285
A. THE ENGINE DOES NOT FUNCTION WELL WHEN HOT.
B. THE SHOCK ABSORBERS ARE NOT EFFICIENT AT HIGH SPEEDS.

*C. THE TIRES DO NOT ABSORB ROAD SHOCKS AS WELL BECAUSE OF INCREASED PRESSURE.
D. THE ACTION OF THE SPRINGS IMPROVES.

THE GAME WAS PLAYED IN -13 DEGREE F. TEMPERATURES. THE GAME BALL WAS INFLATED TO 5 POUNDS PRESSURE IN THE LOCKER ROOM. WHAT WAS THE PRESSURE OF THE BALL AT THE END OF THE GAMEO 1286
*A. LESS THAN 5 POUNDS
B. GREATER THAN 5 POUNDS
C. 5 POUNDS

****

THE STUDENT CAN SHOW HIS COMPREHENSION OF GRAVITATION BY IDENTIFYING THE EFFECT OF MASS UPON WEIGHT. %1¤ 0198

CHOOSE THE CORRECT ANSWER. 1

AN OBJECT WEIGHING 100 POUNDS ON EARTH WILL WEIGH LESS ON THE MOON BECAUSE 1289
*A. THE MOON IS SMALLER AND HAS LESS MASS.
B. THE MOON IS 240,000 MILES FROM THE EARTH.
C. THE PERIOD OF ROTATION AND REVOLUTION OF THE MOON ARE EQUAL.
D. THE MOON TRAVELS RAPIDLY ON ITS AXIS.

****

THE STUDENT WILL APPLY HIS KNOWLEDGE ABOUT THE DIFFERENCE IN THE EXPANSION OF VARIOUS METALS BY ANTICIPATING CORRECTLY THE ACTION OF THESE METALS IN A NEW SITUATION. %2¤ 0219

THIS IS A THERMOSTAT THAT IS SENSITIVE TO THE TEMPERATURE CONDITIONS OF A ROOM SET AT 72 DEGREES F.. CONNECTION BETWEEN POINTS A AND B WILL TURN THE FURNACE ON. THE CONNECTION OF POINTS B AND C WILL TURN THE FURNACE OFF. 0061

AS THE TEMPERATURE OF THE ROOM DROPS THE BAR CONTRACTS BUT THE 1425
*A. BRASS CONTRACTS MORE.
B. STEEL CONTRACTS MORE.
C. BRASS AND STEEL CONTRACT THE SAME.

AS THE TEMPERATURE OF THE ROOM RISES THE BAR EXPANDS BUT THE 1426
A. STEEL EXPANDS MORE.
*B. BRASS EXPANDS MORE.
C. THE BRASS AND STEEL EXPAND THE SAME.

****

THE STUDENT WILL APPLY HIS KNOWLEDGE OF 5 IMPORTANT SOURCES OF HEAT BY SELECTING THE CORRECT SOURCE OF HEAT FOR A GIVEN SITUATION. %10¤ 0222

DIRECTIONS - SELECT THE CORRECT SOURCE OF HEAT USING 0063
S - THE SUN
C - CHEMICAL ACTION
M - MECHANICAL
N - NUCLEAR
E - ELECTRICAL

A CAMPFIRE *C 1437

A ROPE BURN *M 1438

A TOASTER *E 1439

A BODY TEMPERATURE OF 98.6 DEGREES F. *C 1440

OCEAN TEMPERATURE *S 1441

GAS STOVE *C 1442

A LIGHT BULB *E 1443

ATOM BOMB *N 1444

AIR TEMPERATURE OUTSIDE *S 1445

TEMPERATURE OF MOVING CAR TIRES *M 1446

****

THE STUDENT WILL APPLY HIS KNOWLEDGE OF HEAT MOVEMENT BY SELECTING ONE OF THREE CORRECT METHODS OF MOVEMENT GIVEN SPECIFIC CONDITIONS. %10¤ 0224

CHOOSE THE CORRECT LETTER CORRESPONDING TO THE TYPE OF MOVEMENT. 0065
A. CONDUCTION
B. CONVECTION
C. RADIATION

WARM AIR RISES IN A ROOM. *B 1457

SMOKE RISES FROM A CHIMNEY. *B 1458

HEAT IS FELT COMING OUT OF THE SIDEWALK AT NIGHT. *C 1459

FROST ON A WINDOW MELTS WHEN A PERSON PUTS HIS HAND ON IT. *A 1460

HEAT IS FELT COMING OUT FROM A LIGHTED LIGHT BULB. *C 1461

A PERSON BURNS HIS HAND ON A HANDLE OF A PAN ON THE STOVE. *A 1462

THE GULF STREAM FLOATS. *B 1463

A CAR BUMPER IS HOT TO TOUCH AFTER SITTING IN THE SUN. *C 1464

COPPER USED AS A COATING ON THE BOTTOM OF PANS. *A 1465

THE OUTSIDE OF AN OVEN DOOR GETS HOT WHEN THE OVEN IS ON. *A 1466

****

THE STUDENT WILL BE ABLE TO ANALYZE DATA ON AIR PRESSURE AT DIFFERENT ALTITUDES AND SELECT CONCRETE INTERPRETATIONS BASED ON THE DATA. %2¤ 0235

DIRECTIONS - ANALYZE THE CHART BELOW TO MAKE THE FOLLOWING CONCLUSIONS. 0073

ALTITUDE IN FEET	PRESSURE IN POUNDS PER PER SQUARE INCH
********	*********
SEA LEVEL	14.7
1,000	14.2
5,000	12.2
10,000	10.1
15,000	8.3
20,000	6.8
25,000	5.4
30,000	4.4
50,000	1.7

THE AMOUNT OF PRESSURE AIR EXERTS AT THE SURFACE OF THE EARTH IS 1593

A. CLOSE TO 14 POUNDS PER SQ. INCH.
B. CLOSER TO 20 POUNDS PER SQ. INCH.
*C. CLOSER TO 15 POUNDS PER SQ. INCH.

FROM 5,000 FT. ABOVE SEA LEVEL TO 15,000 FT. ABOVE SEA LEVEL THE AIR PRESSURE IS 1594

A. GREATER.
*B. LESS.
C. THE SAME.

****

THE STUDENT WILL DEMONSTRATE AN UNDERSTANDING OF AIR PRESSURE AT THE SURFACE OF EARTH BY SELECTING A CORRECT EXPLANATION FOR IT. %1¤ 0237

CHOOSE THE CORRECT ANSWER. 1

AIR EXERTS A PRESSURE OF 14.7 LBS. PER SQ. INCH AT THE EARTH,S SURFACE BECAUSE THE AIR 1599

A. NEAR THE SURFACE IS COLD AND THEREFORE IS HEAVY.
B. NEAR THE SURFACE HAS MUCH WATER FROM THE OCEANS AND LAKE ON THE SURFACE.
*C. MOLECULES NEAR THE SURFACE ARE SQUEEZED BY THE WEIGHT OF ALL THE AIR ABOVE IT.

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE PRINCIPLES OF MOLECULAR KINETIC ENERGY BY INDICATING WHETHER HEAT IS BEING ADDED TO OR TAKEN FROM GIVEN SUBSTANCES IN GIVEN SITUATIONS. %9¤ 0263

THE FOLLOWING LIST OF NINE ITEMS DESCRIBES TEN DIFFERENT THINGS THAT MIGHT HAPPEN TO DIFFERENT SUBSTANCES TO MAKE THEM EXPAND, CONTRACT, OR CHANGE THEIR STATE. IN THE SPACE PROVIDED CHOOSE, 0080

A. IF HEAT IS BEING ADDED TO THE SUBSTANCE.
B. IF HEAT IS BEING TAKEN FROM THE SUBSTANCE.
C. IF NO HEAT IS BEING ADDED TO *OR* TAKEN FROM THE SUBSTANCE.

ICE TURNS TO LIQUID WATER. *A 1691

A PERFUME BOTTLE IS OPENED AND THE ODOR FILLS THE ROOM. *C 1692

THE GAS IN A SEALED BALLOON BEGINS TO EXPAND. *A 1693

AIR IS BEING PUMPED INTO A TIRE. *C 1694

STEAM TURNS TO LIQUID WATER. *B 1695

FREON GAS IN A REFRIGERATOR IS CHANGED TO LIQUID FREON BY THE REFRIGERTOR MOTOR. *B 1696

STEEL IS MELTED TO A LIQUID AT THE STEEL MILL. *A 1697

THE MERCURY IN A THERMOMETER RISES IN ITS TUBE. *A 1698

HUMIDITY BECOMES DROPS OF WATER ON THE OUTSIDE OF A GLASS OF ICED TEA. *B 1699

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF MODES OF HEAT TRANSFER BY IDENTIFYING THE SPECIFIC MODE OF TRANSFER IN GIVEN SITUATIONS. %11□ 0264

THE FOLLOWING LIST OF ITEMS DESCRIBES CASES IN WHICH HEAT ENERGY IS OR IS NOT BEING TRANSFERRED. IN THE SPACE PROVIDED CHOOSE 0081

A. IF HEAT IS BEING TRANSFERRED BY CONDUCTION.
B. IF HEAT IS BEING TRANSFERRED BY CONVECTION.
C. IF HEAT IS BEING TRANSFERRED BY RADIATION.
D. IF HEAT IS NOT BEING TRANSFERRED AT ALL.

THE AIR ABOVE A BLACKTOP PARKING LOT IS RISING. *B 1700

THE GULF STREAM IS A CURRENT THAT CARRIES WARM WATERS ACROSS THE ATLANTIC OCEAN. *B 1701

THE SUN HEATS THE SURFACE OF THE MOON. *C 1702

THE HANDLE OF A FRYING PAN GETS HOT. *A 1703

THE CEILING OVER A RADIATOR GETS WARM. *B 1704

A GLASS OF ICY WATER ON A TABLE BECOMES ROOM TEMPERATURE. *A 1705

AN INFRARED LAMP IN THE CEILING ARE USED TO BAKE THE PAINT ONTO A NEW CAR. *C 1706

THE COILS INSIDE A FREEZER MAKE THE AIR COLD. *A 1707

THE SODA POP IN A THERMOS STAYS PERFECTLY COLD. *D 1708

I FEEL THE HEAT FROM A FIREPLACE ON THE FRONT OF MY BODY, BUT NOT ON MY BACK. *C 1709

A RED-HOT PIECE OF METAL, SUSPENDED IN A VACUUM CHAMBER WITH INSULATED CORD, BECOMES COOL. *C 1710

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE DEFINITION OF WORK AS FORCE OVER DISTANCE BY CHOOSING THE CORRECT FORMULA FROM A GIVEN LIST AND THEN APPLYING THE FORMULA TO GIVEN SITUATIONS. %5¤ 0265

CHOOSE THE CORRECT ANSWER. 1

THE FORMULA THAT REPRESENTS THE SCIENTIFIC DEFINITION OF *WORK* IS 1711
A. DISTANCE EQUALS FORCE X WORK
B. FORCE EQUALS DISTANCE OVER WORK
C. FORCE EQUALS DISTANCE X WORK
*D. WORK EQUALS FORCE X DISTANCE

AN AIRPORT TRACTOR PULLS A JET TO THE RUNWAY. WORK EQUALS 5,000,000 FOOT-POUNDS. DISTANCE EQUALS 1000 FEET. THE TRACTOR PULLS WITH LBS. OF FORCE. 1712
A. 5,000,000,000
B. 5,000,000
C. 500
*D. 5,000

USING A SINGLE FIXED PULLEY, WARREN LIFTS A BALE OF HAY 20 FT. THE BALE WEIGHS 50 LBS. HOW MUCH WORK IS DONEO 1713
A. 50 FT. LBS.
B. 100 FT. LBS.
*C. 1000 FT. LBS.
D. 500 FT. LBS.

BERT ROLLS A 60 LB. BARREL OF *MOTHER HUBBA,S MOLASSES* UP THE 4 FOOT RAMP. BERT DID FT.-LBS. OF WORK. 1714
*A. 240
B. 600
C. 480
D. 15

BERT WAS PUSHING ON THE BARREL WITH A FORCE OF LBS. 1715
A. 60
*B. 30
C. 40
D. 15

****

THE STUDENT WILL INTERPRET THE EFFECT OF HEAT UPON MOLECULES BY IDENTIFYING THE MOLECULAR CHANGE THAT OCCURS WHEN HEAT IS INDUCED. %1¤ 0266

CHOOSE THE CORRECT ANSWER. 1

AS A MERCURY THERMOMETER GETS WARMER, THE MERCURY EXPANDS. WHAT 2400508
HAPPENS WHEN MERCURY EXPANDSO 2400508
A. MORE MOLECULES OF MERCURY APPEAR 2400508
*B. THE SPACE BETWEEN THE MOLECULES GETS LARGER 2400508
C. THE MOLECULES EXPAND IN SIZE 2400508

* * *

THE STUDENT CAN APPLY RESULTS OF CARBON DIOXIDE EXPERIMENTS 0269
BY CITING METHODS AND RESULTS OF TESTING FOR THIS GAS. %6□

CHOOSE THE CORRECT ANSWER. 1

TO TEST WHETHER A GAS IS CARBON DIOXIDE YOU SHOULD COMBINE IT 2400526
A. WITH VINEGAR. 2400526
*B. WITH LIMEWATER. 2400526
C. WITH WATER. 2400526

WHEN CARBON DIOXIDE COMBINES WITH CALCIUM HYDROXIDE 2400527
*A. CALCIUM CARBONATE AND WATER ARE FORMED. 2400527
B. LIMEWATER IS FORMED. 2400527
C. OXYGEN IS RELEASED. 2400527

WHEN CARBON DIOXIDE COMBINES WITH CALCIUM HYDROXIDE 2400528
*A. IT TURNS A CLOUDY, MILKY COLOR. 2400528
B. IT REMAINS A CLEAR, COLORLESS LIQUID. 2400528
C. IT FORMS A ODORLESS, COLORLESS GAS. 2400528

A PERSON TOOK A LITTLE PLAIN SODA WATER AND ADDED IT TO LIMEWAT- 2400529
ER. A MILKY, WHITE SUBSTANCE APPEARED. WHAT COMPOUND MUST HAVE 2400529
BEEN PRESENTO 2400529
A. CARBONIC ACID 2400529
B. VINEGAR 2400529
*C. CARBON DIOXIDE 2400529

A PERSON BLOWS THROUGH A STRAW INTO LIMEWATER. THE RESULT WILL 2400531
BE THE FORMATION OF 2400531
A. CALCIUM HYDROXIDE.
*B. CALCIUM CARBONATE.
C. CARBON DIOXIDE.

AN APPLE AND A DIME ARE EACH SEALED IN A PLASTIC BAG. IF AFTER 2400532
24 HOURS SOME LIMEWATER WAS POURED INTO EACH BAG, THE RESULTS 2400532
WILL BE THE LIMEWATER IN 2400532
*A. THE BAG WITH THE APPLE WILL TURN CLOUDY. 2400532
B. THE BAG WITH THE DIME WILL TURN CLOUDY. 2400532
C. BOTH BAGS WILL TURN CLOUDY. 2400532
D. NEITHER OF THE BAGS WILL TURN CLOUDY. 2400532

* * *

THE STUDENT WILL APPLY HIS KNOWLEDGE OF THE EFFECTS OF 0278
TEMPERATURE CHANGE ON MOLECULE MOVEMENT BY IDENTIFYING OUTCOMES
TO HYPOTHETICAL SITUATIONS. %3□

CHOOSE THE CORRECT ANSWER. 1

A BALLOON WAS BLOWN UP AS TIGHTLY AS POSSIBLE WITHOUT BREAKING, 0597
THEN PUT IN THE REFRIGERATOR. WHAT HAPPENEDO 2400597
A. NOTHING 2400597
B. IT BECAME LARGER 2400597
*C. IT BECAME SMALLER 2400597
D. IT BLEW UP 2400597

THE EXPLANATION FOR THE CHANGE IN SIZE OF AN OBJECT WHEN IT GOES 0599
FROM A COOL PLACE TO A WARM PLACE

*A. THE MOLECULES SPEED UP 2400599
B. THE MOLECULES SLOW DOWN 2400599
C. THE MOLECULES GET SMALLER.

WHILE DRIVING ON THE TOLL ROAD. A GOOD TIRE HAD A BLOW OUT. THIS 2400600
WOULD MOST LIKELY HAPPEN DUE TO 2400600
A. FRICTION. 2400600
*B. INCREASED MOLECULE MOVEMENT.
C. TOO LITTLE AIR. 2400600
D. TOO MUCH AIR. 2400600

****

THE STUDENT WILL BE ABLE TO APPLY BERNOULLI.S PRINCIPLE TO 0279
VARIOUS SITUATIONS BY IDENTIFYING CHANGES IN AIR PRESSURE. %2¤

CHOOSE THE CORRECT ANSWER. 1

AIR TRAVELING OVER A CURVED SURFACE 2400612
*A. SPEEDS UP. 2400612
B. SLOWS DOWN. 2400612
C. STAYS THE SAME. 2400612
D. GETS HARDER. 2400612

MOLECULES TRAVELING QUICKLY HAVE 2400613
A. MORE PRESSURE. 2400613
B. NO PRESSURE. 2400613
*C. LESS PRESSURE. 2400613
D. THE SAME PRESSURE. 2400613

****

THE STUDENT WILL DEMONSTRATE COMPREHENSION OF KINETIC ENERGY BY 0280
SELECTING THE KINETIC POWER SOURCE USED BY MACHINES. %2¤

CHOOSE THE CORRECT ANSWER. 1

WINDMILLS GET THEIR ENERGY FOR WORK FROM 2400618
*A. AIR. 618
B. WATER.
C. THEIR WINGS . 2400618
D. NONE OF THESE. 2400618

STEAM ENGINES GET THEIR ENERGY FOR WORK FROM 2400620
*A. HEAT.
B. WATER. 2400620
C. PISTONS. 2400620
D. FUEL. 2400620

****

THE STUDENT WILL APPLY THE SCIENTIFIC FACT THAT SOUND TRAVELS 0283
APPROXIMATELY 1,100 FT. PER SECOND BY SELECTING THE CORRECT
SOLUTION TO A PROBLEM INVOLVING THE CALCULATION OF THE SPEED OF
SOUND. %1¤

CHOOSE THE CORRECT ANSWER. 1

WHILE YOU WERE LOOKING OUT A WINDOW DURING A STORM, YOU SAW A 2400631
STREAK OF LIGHTNING. YOU WERE ABLE TO COUNT BY THOUSANDS TO 2400631
4,000 BEFORE HEARING THE THUNDER. THE LIGHTNING WAS APPROXIMATE- 2400631
LY - %COUNTING SECONDS IS SOMETIMES DONE BY COUNTING BY 2400631
THOUSANDS□ 2400631
A. 40 FT. AWAY. 2400631
*B. 4,400 FT. AWAY. 2400631
C. 5,528 FT. AWAY. 2400631

****

THE STUDENT KNOWS THE MEANING OF HYPOTHESIS BY SELECTING IT WHEN 0048
GIVEN ITS DEFINITION. %2□

CHOOSE THE CORRECT ANSWER. 1

WE CALL THE EDUCATED GUESS A SCIENTIST MAKES TO EXPLAIN A 2400226
PROBLEM. 2400226
A. AN EXPERIMENT 2400226
B. AN EXAMPLE 2400226
C. AN OBSERVATION 2400226
*D. A HYPOTHESIS 2400226
E. A TEST 2400226

WHICH OF THE FOLLOWING WOULD BE AN EXAMPLE OF A HYPOTHESISO 2400227
*A. MAGNETISM HOLDS A PAPER CLIP UP. 2400227
B. THE PAPER CLIP FALLS. 2400227
C. PLACE A PIECE OF PAPER BETWEEN A MAGNET AND A PAPER CLIP. 2400227
D. THE CLIP IS PULLED TO THE MAGNET.

****

GIVEN A PARAGRAPH ON THE DISCOVERY OF RADIUM AND ITS RELATION TO 0124
ATOMIC ENERGY, THE CHILD WILL EVALUATE THE STATEMENT BY SELECTING
CONCLUSIONS FROM IT. %1□

CHOOSE THE CORRECT ANSWER. 1

IN 1898 MADAME CURIE DISCOVERED RADIUM. IT WAS DISCOVERED THAT 2400469
ATOMS OF RADIATION THREW OFF PARTICLES AND RADIATIONS THAT WENT 2400469
THROUGH FLESH AND EVEN SOME METAL. THIS RADIATION LED SCIENTISTS 2400469
TO BELIEVE THAT THEY COULD USE THE POWER GIVEN OFF TO DO MANY 2400469
THINGS THAT HAD PREVIOUSLY BEEN UNATTAINABLE. 2400469
2400469
ONE CONCLUSION FROM THIS PARAGRAPH IS 2400469
A. ATOMIC ENERGY IS OPERATING AT MAXIMUM CAPACITY. 2400469
B. ATOMIC ENERGY IS MORE POWERFUL THAN ANY OTHER FORM OF 2400469
ENERGY. 2400469
*C. RADIATION COULD BE DANGEROUS TO THE BODY. 2400469
D. NONE OF THE ABOVE. 2400469

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THE STUDENT CAN APPLY HIS KNOWLEDGE OF DENSITY BY SELECTING 0127
WHETHER A GIVEN OBJECT WILL FLOAT OR SINK. %2□

CHOOSE THE CORRECT ANSWER. 1

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IF AN OBJECT IS LESS DENSE OR LIGHTER THAN THE SAME VOLUME OF        2400472
WATER THAT IT DISPLACES, THE OBJECT WILL                             2400472
  A. SINK.                                                           2400472
 *B. FLOAT.                                                          2400472
  C. NOT ENOUGH INFORMATION GIVEN.                                   2400472

IF AN OBJECT IS HEAVIER OR MORE DENSE THAN THE SAME AMOUNT OF        2400473
WATER IT DISPLACES, THE OBJECT WILL                                  2400473
 *A. SINK.                                                           2400473
  B. FLOAT.                                                          2400473
  C. NOT ENOUGH INFORMATION GIVEN.                                   2400473

**************************************************************************

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE                   0220
RELATIONSHIP BETWEEN TEMPERATURE AND HEAT BY SELECTING
THE CORRECT RESPONSES.  %2¤

CHOOSE THE CORRECT ANSWER.
                                                                           1

IN COMPARISON TO A CUP OF WATER AT 100 DEGREES F. A BATHTUB OF          1427
WATER AT 100 DEGREES F. CONTAINS
  A. FASTER MOVING MOLECULES.
  B. SLOWER MOVING MOLECULES.
  C. THE SAME AMOUNT OF HEAT.
 *D. A GREATER AMOUNT OF HEAT.

WHICH OF THE FOLLOWING CONTAINS THE *MOST* HEATO                         1428
  A. A BURNING MATCH
 *B. THE PACIFIC OCEAN
  C. A BATHTUB FILLED WITH BOILING WATER
  D. LAKE MICHIGAN

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LIGHT

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THE STUDENT CAN DISTINGUISH BETWEEN THE PROPERTIES OF LIGHT AND         0026
SOUND BY SELECTING CHARACTERISTICS OF EACH IN GIVEN SITUATIONS.
%6¤

CHOOSE THE CORRECT ANSWER.
                                                                           1

LIGHT AND SOUND BEHAVE ALIKE IN MANY WAYS.  WHICH STATEMENT          2400098
IS TRUE ONLY OF LIGHTO                                               2400098
  A. IT CAN BE REFLECTED.                                            2400098
  B. IT CAN BE ABSORBED.                                             2400098
  C. IT CAN TRAVEL IN STRAIGHT LINES.                                2400098
 *D. IT CAN TRAVEL THROUGH OUTER SPACE.                              2400098

WHEN LIGHT HITS A MIRROR, THE LIGHT IS                               2400100
 *A. REFLECTED.                                                      2400100
  B. DIFFUSED.                                                       2400100
  C. ABSORBED.                                                       2400100
  D. REFRACTED.                                                      2400100
  E. FOCUSED.                                                        2400100
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MOST OF THE LIGHT WHICH HITS A PIECE OF BLACK PAPER IS                    0101
  A. REFLECTED.                                                        2400101
  B. DIFFUSED.                                                         2400101
 *C. ABSORBED.                                                         2400101
  D. REFRACTED.                                                        2400101
  E. FOCUSED.                                                          2400101

A ROUGH SURFACE CAUSES LIGHT TO BE                                     2400102
  A. REFLECTED.                                                        2400102
 *B. DIFFUSED.                                                         2400102
  C. ABSORBED.                                                         2400102
  D. REFRACTED.                                                        2400102
  E. FOCUSED.                                                          2400102

A LENS BRINGS LIGHT TO A POINT.  THE LIGHT HAS BEEN                    2400103
  A. REFLECTED.                                                        2400103
  B. DIFFUSED.                                                         2400103
  C. ABSORBED.                                                         2400103
 *D. REFRACTED.                                                        2400103
  E. FOCUSED.                                                          2400103

WHICH OF THE FOLLOWING IS FALSEO                                       2400104
  A. LIGHT CAN BE ABSORBED AND REFLECTED.                              2400104
  B. LIGHT IS A FORM OF ENERGY.                                        2400104
  C. SOMETIMES LIGHT BEHAVES LIKE A STREAM OF PARTICLES.               2400104
  D. SOMETIMES LIGHT TRAVELS LIKE WAVES.                               2400104
 *F. LIGHT AND SOUND ARE THE SAME FORMS OF ENERGY BECAUSE THEY
     OFTEN BEHAVE ALIKE.

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THE STUDENT WILL APPLY HIS KNOWLEDGE OF LIGHT REFLECTION BY               0284
SELECTING PRACTICAL SOLUTIONS TO PROBLEMS INVOLVING LIGHT
REFLECTION.  %1⊓

CHOOSE THE CORRECT ANSWER.
                                                                              1
A BUILDER IS CONSTRUCTING A PHOTOGRAPHIC DARK ROOM.  HE WILL           2400632
PAINT THE WALLS A                                                      2400632
  A. YELLOW AND USE BRIGHT EQUIPMENT.
 *B. DARK GREY AND USE DULL FINISHED EQUIPMENT.                        2400632
  C. DARK COLOR BUT MAKE SURE THERE IS A LARGE WINDOW FOR FRESH        2400632
     AIR.                                                              2400632

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THE STUDENT WILL BE ABLE TO RECALL THE FACT THAT LIGHT TRAVELS IN         0285
STRAIGHT LINES BY IDENTIFYING THE CORRECT DESCRIPTION OF LIGHT.S
PATH.  %1⊓

CHOOSE THE CORRECT ANSWER.
                                                                              1
LIGHT TRAVELS                                                          2400633
  A. AROUND BENDS AND CURVES.                                          2400633
 *B. IN STRAIGHT LINES.                                                2400633
  C. OVER HILLS AND INTO VALLEYS.
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THE STUDENT WILL APPLY HIS KNOWLEDGE OF LIGHT REFLECTION BY
IDENTIFYING ITEMS THAT REFLECT OR ABSORB LIGHT.  %2□              0286

CHOOSE THE CORRECT ANSWER.
                                                                      1
WHICH OF THE FOLLOWING ITEMS WILL ABSORB THE MOST LIGHTO           0635
  A. YELLOW DRESS                                               2400635
 *B. PURPLE DRESS                                               2400635
  C. LIGHT BLUE COAT                                            2400635
  D. PALE PINK DRESS                                            2400635
                                                                2400635

WHICH OF THE FOLLOWING ITEMS WILL REFLECT THE MOST LIGHTO       2400636
  A. BURNT FRYING PAN                                           2400636
 *B. ALUMINUM PAN                                               2400636
  C. DEEP GREEN PAN                                             2400636
                                                                2400636

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THE STUDENT WILL BE ABLE TO ANALYZE LIGHT BEING PRODUCED BY A
CHEMICAL CHANGE BY SELECTING CORRECT SOLUTIONS TO PROBLEMS IN-     0287
VOLVING THE PRODUCTION OF LIGHT.  %3□

CHOOSE THE CORRECT ANSWER.
                                                                      1
WHEN A CANDLE BURNS, A CHEMICAL CHANGE TAKES PLACE.  DURING THIS  2400649
CHEMICAL CHANGE THE MOLECULES ARE                                 2400649
 *A. CHANGED INTO DIFFERENT MOLECULES AND ENERGY IS RELEASED.     2400649
  B. NOT CHANGED IN ANY WAY.                                      2400649
  C. CHANGED BUT DO *NOT* RELEASE ENERGY.                         2400649

THE ENERGY *RELEASED* FROM A BURNING CANDLE                       2400650
  A. IS ABSORBED BY THE FLAME.                                    2400650
 *B. IS IN THE FORM OF HEAT AND LIGHT.                               0650
  C. FORMS CARBON DIOXIDE AND WATER.                              2400650

IF YOU WERE TO DESCRIBE TO SOMEONE THE CHEMICAL CHANGE TAKING     2400651
PLACE WHEN A *BUNSEN* BURNER IS IGNITED, YOU WOULD SAY
  A. THE GAS MOLECULES ARE MOVING RAPIDLY, GIVING OFF HEAT AND
     LIGHT.
 *B. THE METHANE GAS IS COMBINED WITH AIR AND IGNITED.  THE       2400651
     MOLECULES OF GAS ARE CHANGED INTO NEW MOLECULES.  HEAT AND      0651
     LIGHT ARE GIVEN OFF.
  C. THE GAS MOLECULES ARE BEING *SEPARATED* BY THE AIR MOLECULES 2400651
     GIVING OFF CARBON DIOXIDE AND WATER VAPOR.                   2400651

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CRITICAL THINKING

THE STUDENT WILL DEMONSTRATE HIS ABILITY TO LOCATE THE CENTRAL IDEA BY SELECTING IT AFTER READING A GIVEN SELECTION. %24□ 0137

READ THE PARAGRAPH BELOW AND CHOOSE THE MAIN IDEA FROM THE ALTERNATIVES GIVEN. 0091

WATER CANNOT BE USED ON ALL FIRES. IT MAKES SOME FIRES HARD TO CONTROL. WATER SHOULD NEVER BE PUT ON BURNING OIL OR BURNING GASOLINE. OIL AND GASOLINE FLOAT ON WATER. WATER SPREADS THE FLAMES FROM OIL AND GASOLINE. 0800

A. WATER MAKES SOME FIRES HARD TO CONTROL.
*B. WATER CANNOT BE USED IN ALL FIRES.
C. WATER SPREADS FLAMES FROM OIL AND GASOLINE.

A MICROSCOPE IS MADE UP OF SEVERAL PARTS. EACH PART HAS A NAME AND A PURPOSE. THE BASE IS THE PEDESTAL ON WHICH THE INSTRUMENT RESTS. CLOSE TO THE BASE IS A MIRROR. THE MIRROR REFLECTS LIGHT ONTO THE OBJECT BEING VIEWED. ABOVE THE MIRROR IS THE STAGE. A SLIDE %PIECE OF GLASS□ IS PLACED ON THE STAGE. THE OBJECT TO BE VIEWED IS MOUNTED ON THE SLIDE. 0802

A. THE MIRROR IS THE MOST IMPORTANT PART OF THE MICROSCOPE FOR IT REFLECTS.
*B. OF THE SEVERAL PARTS OF A MICROSCOPE EACH IS NAMED AND HAS A JOB.
C. A SLIDE IS A PLAIN PIECE OF GLASS USED FOR PLACING SPECIMENS.
D. THE BASE IS THE MOST IMPORTANT PART BECAUSE IT HOLDS THE MICROSCOPE.

IN CITIES WATER IS OFTEN STORED IN RESERVOIRS. IT IS BROUGHT FROM MOUNTAIN STREAMS TO RESERVOIRS BY CANALS. THE WATER MOVES FROM RESERVOIRS INTO THE CITIES BY LARGE PIPES. IT COMES INTO OUR HOMES AND BUILDINGS BY PIPES. 0801

A. EVERY CITY HAS A RESERVOIR.
*B. WE HAVE EFFICIENT WAYS OF GETTING WATER INTO OUR HOMES.
C. THERE ARE MANY PIPES IN OUR CITIES.

THE UPPER PART OF A MICROSCOPE CONSISTS OF A STAND AND TWO TUBES. THE STAND HOLDS THE TUBES IN PLACE. THE UPPER TUBE FITS SNUGLY IN THE LOWER TUBE. THE SCIENTIST ADJUSTS THE LENSES TO HIS EYES BY TURNING KNOBS CALLED ADJUSTING WHEELS. THE ADJUSTING WHEELS CAUSE THE UPPER TUBE TO MOVE UP OR DOWN WITHIN THE LOWER TUBE. 0803

A. LENSES OF A MICROSCOPE ARE MOST IMPORTANT IN VIEWING SPECIMENS.
B. THE TUBES OF A MICROSCOPE ARE CLOSE FITTING AND ADJUSTABLE.
C. THE MICROSCOPE IS DIVIDED INTO UPPER AND LOWER PARTS.
*D. TWO TIGHTLY FITTING TUBES AND A STAND MAKE UP THE UPPER PART OF A MICROSCOPE.

AS LONG AS MAN HAS RAISED CROPS AS A SOURCE OF FOOD AND OTHER PRODUCTS, INSECTS HAVE DAMAGED HIS CROPS. BETWEEN 1870 AND 1880, LOCUSTS ATE MILLIONS OF DOLLARS WORTH OF CROPS IN THE MISSISSIPPI VALLEY. TODAY IN THE UNITED STATES THE COTTON BOLL WEEVIL DAMAGES ABOUT 300 MILLION DOLLARS WORTH OF CROPS EACH YEAR. ADDITIONAL MILLIONS 0804

ARE LOST EACH YEAR TO THE APPETITES OF OTHER PLANT-EATING INSECTS. SOME OF THESE ARE CORN BORERS, GIPSY MOTHS, POTATO BEETLES, AND JAPANESE BEETLES.

*A. INSECTS ARE VERY HARMFUL TO MAN,S CROPS.
B. LOCUSTS USUALLY DO MUCH DAMAGE TO CROPS IN THE MISSISSIPPI VALLEY.
C. PLANT-EATING INSECTS ARE THE ONLY ENEMIES OF CROP RAISERS.

THE ELECTRIC EEL, A NATIVE FISH OF SOUTH AMERICA, DEFENDS ITSELF FROM ATTACKS OF ENEMIES BY A NATURAL ELECTRIC BATTERY. A DISCHARGE FROM THIS BATTERY IS POWERFUL ENOUGH TO STUN EVEN THE LARGEST ANIMALS. WHERE ROADS PASS THROUGH PONDS FREQUENTED BY THESE PECULIAR FISH, IT HAS OFTEN BEEN FOUND NECESSARY TO CHANGE THE LINE OF THE ROAD FOR FEAR OF THEM. 0805

A. ROADS CANNOT PASS BY PONDS THAT HAVE ELECTRIC EELS.
*B. THE ELECTRIC EEL HAS AN UNUSUAL WAY OF DEFENDING ITSELF.
C. ELECTRIC EELS CAN STUN EVEN LARGE ANIMALS WITH ITS ELECTRIC CHARGE.

TALK ABOUT CATS EYES THAT CAN SEE IN THE DARKO MAN HAS MADE SOMETHING THAT CAN SEE WHEN IT IS SO DARK OR FOGGY THAT EVEN A CAT CANNOT SEE. WITH THIS EYE AVIATORS CAN SEE TO LAND THEIR AIRPLANES IN ANY WEATHER, DAY OR NIGHT. SHIPS PILOTS WHO ONCE WERE AFRAID TO ENTER HARBORS DURING DARKNESS OR THICK FOG NOW ENTER UNDER THESE CONDITIONS WITHOUT FEAR. THERE WILL PROBABLY BE A HUNDRED OTHER USES FOR THIS WONDERFUL INVENTION CALLED RADAR. 0806

*A. RADAR HAS MANY USES FOR MAN.
B. RADAR IS BETTER THAN CATS EYES.
C. RADAR IS USED ONLY BY AVIATORS AND SHIPS PILOTS.

WATER IS EVERYWHERE. THERE IS MORE WATER THAN LAND ON OUR EARTH. EVERYTHING THAT LIVES MUST HAVE WATER. PLANTS NEED WATER IN ORDER TO GROW. ANIMALS CANNOT LIVE WITHOUT WATER. WE USE WATER IN OUR HOMES FOR MANY PURPOSES. 0807

*A. ALL LIVING THINGS NEED WATER IN ORDER TO LIVE AND GROW.
B. WATER IS FOUND ON OUR EARTH.
C. WE USE WATER IN OUR HOMES.

WHEN LARGE AMOUNTS OF WARM WATER ARE DUMPED INTO A RIVER, THE RIVER ITSELF IS HEATED. THE TEMPERATURE OF THE WATER MAY BE RAISED ONLY A FEW DEGREES. YET THESE FEW DEGREES CAN CHANGE THE ANIMAL AND PLANT LIFE IN THE RIVER. HEAT CAUSES A LOSS OF OXYGEN IN THE WATER. FISH NO LONGER DO WELL, AND SOME KINDS DIE. WITHOUT ENOUGH OXYGEN, BACTERIA IN THE RIVER CANNOT BREAK DOWN WASTE MATTER. THE RIVER IS NO LONGER CLEAN. 0808

A. HEAT CAUSES WATER TO LOSE OXYGEN.
B. SOME FISH CANNOT SURVIVE IN WARM WATER.
*C. LARGE AMOUNTS OF WARM WATER CAN BE DANGEROUS TO LIFE IN OUR RIVERS AND LAKES.

MOST SPIDERS BUILD WEBS TO TRAP OTHER INSECTS. BUT THE TRAP-DOOR SPIDER HAS ANOTHER WAY OF HUNTING. FIRST, IT DIGS A HOLE ABOUT TEN INCHES DEEP AND AN INCH AND A HALF WIDE. NEXT, IT MAKES A LID OF DIRT AND WEBBING. THIS TRAP DOOR MUST FIT OVER THE UPPER END OF THE HOLE LIKE A CORK FITS IN A BOTTLE. 0809

*A. HOW THE TRAP-DOOR SPIDER TRAPS INSECTS.
B. THE TRAP DOOR FITS LIKE A CORK FITS IN A BOTTLE.

C. THE TRAP-DOOR SPIDER CANNOT BUILD WEBS AS OTHER SPIDERS DO.

0810 IT IS FALL IN THE MIDWEST. THE WHEAT FIELDS LOOK LIKE A GOLDEN OCEAN. BUT IT WAS NOT ALWAYS THIS WAY. LONG AGO, MANY FARMERS HAD TO GIVE UP GROWING WHEAT. THERE WAS LITTLE RAIN. THE WEATHER WAS TOO COLD. AND MANY PLANTS HAD BROWN SPOTS. THE BROWN SPOTS WERE A SIGN OF WHEAT RUST. WHEN THE FARMERS SAW THE WHEAT RUST, THEY KNEW THEIR WHEAT WOULD DIE.

A. WHEAT GROWS ONLY IN THE MIDWEST.
B. WHEAT WILL NOT GROW WITHOUT RAIN.
*C. BAD WEATHER CONDITIONS CAUSED WHEAT RUST.

0811 MOST ANTS ARE GREAT FIGHTERS AND OFTEN FIGHT IN ORGANIZED ARMIES. WHEN ONE ARMY WANTS TO ATTACK AN ANT HILL, IT SENDS SCOUTS AHEAD AND BEHIND TO LOOK FOR DANGER. THE ANTS SWARM OVER THE ANT HILL THEY WISH TO CAPTURE. IF THEY ARE SUCCESSFUL, THEY CARRY AWAY THE DEAD BODIES OF THEIR ENEMIES. THEY ALSO CARRY THE EGGS OF THE ENEMY ANTS TO THEIR OWN HOMES. THE ANTS THAT ARE HATCHED FROM THESE EGGS BECOME SLAVES. THESE SLAVES WORK VERY HARD AND HAVE LITTLE TIME FOR REST. SOMETIMES THE ANTS THAT ARE WAITED ON ALL THE TIME BY THE SLAVES BECOME SO HELPLESS THAT THEY ARE NOT ABLE TO WALK OR EVEN MOVE.

A. SOME ANTS BECOME VERY LAZY.
B. ANTS ARE FIERCE FIGHTERS.
*C. ANTS FIGHT IN ORGANIZED ARMIES AND USE THEIR CAPTURED ENEMIES AS SLAVES.

0812 SCIENTISTS OFTEN TAKE FIELD TRIPS. THEY LEARN ABOUT PLANT AND ANIMAL COMMUNITIES BY GOING ON FIELD TRIPS. THE SCIENTISTS GO TO PLACES WHERE CERTAIN PLANTS AND ANIMALS LIVE TOGETHER. THEY MAY GO INTO A FOREST. OR THEY MAY GO INTO A DESERT. THERE ARE PLANTS AND ANIMALS ON THE DESERT.

A. THERE ARE PLANTS AND ANIMALS ON THE DESERT.
B. SCIENTISTS OFTEN TAKE FIELD TRIPS.
*C. SCIENTISTS GO TO PLACES WHERE CERTAIN PLANTS AND ANIMALS LIVE TOGETHER.

0813 TADPOLES HAVE GILLS. THEY MUST LIVE IN THE WATER. THE GILLS TAKE OXYGEN FROM THE WATER. THE TADPOLES EAT SMALL PLANTS. THE SMALL PLANTS ARE FOUND IN THE WATER.

A. TADPOLES HAVE GILLS.
*B. TADPOLES MUST LIVE IN THE WATER.
C. TADPOLES EAT SMALL PLANTS.

0814 HERE IS AN AMERICAN TOAD. SEE ITS LONG TONGUE. THE TONGUE IS AT THE FRONT OF THE TOAD.S MOUTH. THE AMERICAN TOAD CAN EASILY FLIP OUT ITS TONGUE TO CATCH INSECTS. ALL TOADS AND FROGS CATCH INSECTS IN THIS WAY.

A. THE AMERICAN TOAD HAS A LONG TONGUE.
B. THE TOAD FLIPS HIS TONGUE TO CATCH INSECTS.
*C. ALL TOADS AND FROGS CATCH INSECTS IN THIS WAY.

0815 FROGS AND TOADS HIBERNATE AS SOON AS THE DAYS BECOME COLD. THEY DIG DOWN INTO THE MUD. THERE THEY HIBERNATE ALL WINTER. HIBERNATION IS LIKE A DEEP SLEEP. ANIMALS DO NOT EAT WHILE THEY ARE HIBERNATING. THEY LIVE ON THE FAT STORED IN THEIR BODIES.

A. FROGS AND TOADS DIG INTO MUD IN THE WINTER.
*B. HIBERNATION IS LIKE A DEEP SLEEP.
C. ANIMALS LIVE ON STORED FAT DURING THEIR LONG SLEEP.

0816 A FIREMAN VISITED THIS CLASS. THE FIREMAN TALKED TO THE

CLASS ABOUT FIRE. HE TOLD THE CHILDREN HOW TO CONTROL FIRE. THE FIREMAN BUILT A CAMP FIRE. HE TALKED ABOUT SAFETY IN THE WOODS. THE FIREMAN TALKED ABOUT FOREST FIRES. HE TALKED ABOUT FIRES IN THE HOME.

A. THE FIREMAN TALKED ABOUT SAFETY IN THE WOODS.
*B. THE FIREMAN TOLD THE CHILDREN HOW TO CONTROL FIRE.
C. HE TALKED ABOUT FIRES IN THE HOME.

LOOK AT THE JET AIRPLANE ... DO YOU WONDER HOW IT MOVESO THE SECRET IS IN THE ENGINE. THE ENGINE BURNS FUEL. THE FUEL MAKES AN EXHAUST. THE EXHAUST CAUSES THE PLANE TO MOVE. IT IS REALLY NO SECRET. 0817

*A. THE EXHAUST MAKES THE PLANE MOVE.
B. AIRPLANE ENGINES BURN FUEL.
C. THE FUEL MAKES AN EXHAUST.

A BIG SPACE ROCKET GOES UP, UP AND UP. IT GOES MUCH FASTER AND MUCH HIGHER THAN A FIREWORK,S SKYROCKET. IT GOES ALL THE WAY INTO SPACE. BUT THE SPACE ROCKET AND THE SKYROCKET WORK IN MUCH THE SAME WAY. THEY BOTH HAVE ROCKET ENGINES. 0818

*A. THE SPACE ROCKET AND THE SKYROCKET HAVE ROCKET ENGINES.
B. THE SPACE ROCKET AND THE SKYROCKET WORK IN MUCH THE SAME WAY.
C. THE SPACE ROCKET IS FASTER AND HIGHER THAN A FIREWORKS SKYROCKET.

MOST PLANTS HAVE SEEDS. THERE ARE MANY KINDS OF SEEDS. SEEDS USUALLY HAVE A COVERING TO PROTECT THEM. MANY PLANTS PRODUCE SEEDS AT THE TOP OF THE STEMS. SOME PLANTS PRODUCE SEEDS IN THEIR FRUIT. SOMETIMES SEEDS ARE FOUND IN CLUSTERS. NEW PLANTS GROW FROM THE SEEDS. 0819

A. PLANTS NEED SEEDS IN ORDER TO GROW.
B. THERE ARE MANY KINDS OF SEEDS.
*C. SEEDS MAY BE FOUND IN MANY DIFFERENT PLACES ON PLANTS.

LATE ONE AFTERNOON MIKE TOOK A TRAY OF ICECUBES OUT OF OF THE FREEZER AND HIS HAND STUCK TO THE TRAY. HE RAN WATER OVER HIS HAND AND THE TRAY TO GET HIS HAND LOOSE. WHICH QUESTION WOULD MIKE MOST LIKELY BE ASKING HIMSELFO 1496

A. IF I HAD GOTTEN THE TRAY THIS MORNING, WOULD THE SAME THING HAVE HAPPENEDO
B. WHY DID THE WATER FEEL SO GOODO
C. WHAT IS WRONG WITH THE FREEZERO
*D. WHY DID MY HAND STICK TO THE ICE TRAYO

10 YEAR OLD JERRY OPENED THE REFRIGERATOR. THE INSIDE FELT COOL. HOWEVER WHEN HE TOUCHED THE MOTOR OF THE REFRIGERATOR, IT FELT HOT. WHAT WOULD JERRY MOST LIKELY BE THINKINGO 1497

A. AM I TOO YOUNG TO BE FOOLING AROUND WITH THE REFRIGERATORO
*B. WHY IS THE REFRIGERATOR COOL AND THE MOTOR HOTO
C. WHAT IS THE TEMPERATURE OF THE REFRIGERATOR AND THE MOTORO
D. HOW CAN I COOL OFF THE MOTORO

LATE ONE SUMMER NIGHT SUE WAS WALKING BAREFOOT ON THE SIDEWALK. THE NIGHT WAS COOL, BUT THE SIDEWALK FELT WARM. WHAT QUESTION WAS SUE LIKELY TO BE ASKING HERSELFO 1498

*A. WHY IS THE SIDEWALK WARMO
B. SHOULD I HAVE WORN SHOESO
C. WHY IS THE EVENING SO COOLO
D. WHAT IS MY FAVORITE SEASONO

ONE MORNING BILL POURED HOT INSTANT TEA INTO A RED GLASS CONTAINING ICE -- THE GLASS CRACKED. HIS SISTER MARY POURED THE TEA INTO A BLUE GLASS CONTAINING ICE AND A SPOON -- THE GLASS DIDN,T BREAK. WHAT QUESTION MOST LIKELY WAS ON BILL,S MIND0 1499

A. WHAT COLOR GLASSES ARE BEST FOR INSTANT ICE TEA0
*B. WHY DID MY GLASS BREAK AND MARY,S DIDN,T0
C. WHAT DOES INSTANT TEA HAVE IN IT TO BREAK GLASS0
D. WHAT TIME OF DAY IS BEST FOR MAKING ICED TEA0

FRED COULDN,T GET THE LID OFF A JAR OF PICKLES. HE WORKED AT IT FOR 5 MINUTES. MARK CAME ALONG AND PUT THE JAR UNDER HOT WATER -- THE LID THEN CAME OFF EASILY. WHAT QUESTION IS FRED PROBABLY ASKING HIMSELF0 1500

A. WHY IS MARK STRONGER THAN ME0
B. WHY ARE PICKLE JARS SO HARD TO OPEN0
*C. HOW DID THE WATER HELP TO LOOSEN THE LID0
D. HOW LONG DOES IT TAKE TO OPEN PICKLE JARS0

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THE STUDENT WILL DEMONSTRATE HIS ABILITY TO DISTINGUISH BETWEEN FACT AND OPINION STATEMENTS BY CORRECTLY CATEGORIZING A GIVEN SET OF STATEMENTS. %46□ 0138

DIRECTIONS - IF THE STATEMENTS BELOW ARE FACTS, CHOOSE THE *A*, IF THE STATEMENT CAN *NOT* BE READILY PROVED OR DISPROVED, CHOOSE THE *B*. 0018

FROGS AND TOADS ARE BOTH AMPHIBIANS. *A 820

FISH LIKE TO SWIM. *B 822

AIR HAS WEIGHT. *A 823

WORMS ARE FUN TO PLAY WITH. *B 824

BEAVER ARE BEAUTIFUL. *B 825

ANIMALS NEED AIR TO BREATHE. *A 826

POSSUMS ARE MAMMALS. *A 827

A RACCOON MAKES A NICE PET. *B 828

FISH GET AIR FROM WATER. *A 829

EVERY SECOND SOME 50 MILLION OF YOUR BODY CELLS DIE. *A 0830

IT WOULD BE MARVELOUS TO SEE THE CELL MAGNIFIED 100,000 TIMES. *B 0831

THE GREATEST SCIENTIFIC DISCOVERY WAS THE INVENTION OF THE HUMAN GENE BY CHEMICALS. *B 0832

SOME SCIENTISTS BELIEVE THE GREATEST STUDY OF THE CELL CAN BE ACCOMPLISHED ONLY THROUGH STUDY OF THE CELL PARTS. *A 0833

IN BACTERIOLOGY, THE MICROSCOPE IS RELIED UPON GREATLY TO ASSIST 0835
THE SCIENTIST IN HIS STUDY OF BACTERIA. *A 0835

THE LENSES ON A MICROSCOPE ARE MARKED ACCORDING TO THEIR 0836

MAGNIFYING POWER. *A

MICROSCOPES, TELESCOPES, AND CAMERAS NEED LENSES TO HELP THE SCIENTIST DO HIS WORK. *A 0837

MOST PLANTS HAVE SEEDS. *A 838

THERE ARE MANY KINDS OF SEEDS. *A 839

ALL SEEDS GROW INTO BEAUTIFUL PLANTS. *B 0841

SEEDS NEED WATER AND GOOD SOIL IN ORDER TO GROW. *A 0842

BIRDS, ANIMALS AND PEOPLE EAT SEEDS. *A 0844

SOME PLANTS CAN PROTECT THEMSELVES. *A 0846

SOME INSECTS EAT PLANTS. *A 847

THERE IS MORE WATER ON EARTH THAN LAND. *A 0848

WATER IS ALWAYS HELPFUL TO MAN. *B 849

WATER HAS MANY USES IN OUR HOMES. *A 850

ALL PEOPLE PREFER WATER THAT COMES DIRECTLY FROM WELLS. *B 0851

IN MOST CITIES WE USE WATER FROM A RESERVOIR. *A 0852

EVERY LIVING THING MUST HAVE WATER. *A 853

WATER IS ALWAYS GOOD FOR DRINKING. *B 854

WATER POLLUTION IS THE MOST SERIOUS POLLUTION PROBLEM. *B 0855

ALL INSECTS HAVE SIX LEGS. *A 858

ALL INSECTS HAVE THREE PARTS TO THEIR BODY. *A 0859

ALL INSECTS LAY EGGS. *A 860

SOME INSECTS LIVE IN WATER. *A 863

ANIMALS EAT INSECTS. *A 864

A MAGNIFYING GLASS IS A SIMPLE MICROSCOPE. *A 0865

IT IS MORE INTERESTING TO VIEW AN AMOEBA THAN RED BLOOD CELLS. *B 0866

THE WING OF A BUTTERFLY IS THE MOST BEAUTIFUL SIGHT ONE CAN SEE WITH A MICROSCOPE. *B 0867

SWARMS OF TINY ANIMALS CALLED PROTOZOA COME TO LIFE IN A DROP OF POND WATER. *A 0868

KNOWLEDGE GAINED BY THE USE OF A MICROSCOPE AFFECTS OUR LIVES IN MANY WAYS. *A 0869

THE NOSEPIECE OF A MICROSCOPE CONTAINS THE OBJECTIVE LENSE, WHICH IS A CONVEX LENS. *A 0870

THE GREATER THE MICROSCOPE MAGNIFIES THE OBJECT, THE BETTER. *B 0871

SCIENTISTS WITH MORE DEDICATION, COULD HAVE SOLVED THE RIDDLE OF THE VIRUS BY NOW. *B 0872

THE LENSES ON A MICROSCOPE ARE MARKED ACCORDING TO THEIR MAGNIFYING POWER. *A 0873

THE ELECTRON MICROSCOPE USES ELECTRONS INSTEAD OF LIGHT RAYS TO FORM AN IMAGE. *A 0874

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THE STUDENT WILL DEMONSTRATE HIS ABILITY TO RECOGNIZE STATED AND UNSTATED ASSUMPTIONS BY SELECTING THEM AFTER HAVING STUDIED A MICROSCOPIC SLIDE. %10¤ %DRAWING OR SLIDE OF AMOEBA¤ 0139

DIRECTIONS - ABOVE YOU SEE A DRAWING OF AN AMOEBA. DRAWINGS ARE IMPORTANT BECAUSE BY STUDYING THEM WE CAN LEARN CERTAIN FACTS. IF YOU BELIEVE THE PICTURE GIVES EVIDENCE TO THE STATEMENT, CHOOSE THE *A* FOR EVIDENCE. IF THE STATEMENT HAS NO EVIDENCE FROM LOOKING AT THE PICTURE CHOOSE *B* FOR *NO* EVIDENCE. 0019

AN AMOEBA IS A SINGLE CELL ORGANISM. *A 875

THE AMOEBA CAN REPRODUCE ITSELF. *B 876

PSEUDOPODS ARE ALSO CALLED THE AMOEBA,S FEET. *B 0877

THE AMOEBA HAS SIX KNOWN PARTS. *A 878

THE NUCLEUS IS PART OF AN AMOEBA. *A 879

THE NUCLEUS IS DARKER BECAUSE IT IS THE PART OF THE CELL THAT HAS DIED. *B 0880

A PARAMECIUM AND AN AMOEBA DIFFER ONLY IN SHAPE. *B 0881

THE CILIA IS PART OF AN AMOEBA. *B 882

EACH PART OF THE AMOEBA HAS A NAME. *A 883

DURING REPRODUCTION THE NUCLEUS DIVIDES EXACTLY IN TWO. *B 0884

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THE STUDENT WILL DEMONSTRATE HIS ABILITY TO DRAW INFERENCES BY EVALUATING THE CERTAINTY OF SELECTED STATEMENTS BASED ON EVIDENCE IN THE PASSAGES. %31¤ 0140

STUDY THE DIAGRAM AND THE PARAGRAPH BELOW -- THEN INDICATE WHETHER THE STATEMENTS FOLLOWING ARE PROBABLY TRUE, PROBABLY FALSE, OR THAT THERE ISN,T ENOUGH EVIDENCE TO MAKE A JUDGEMENT. USE THE FOLLOWING KEY. 0067

A. PROBABLY TRUE
B. PROBABLY FALSE
C. CAN,T SAY -- NOT ENOUGH EVIDENCE

%NEED DIAGRAM OF REFRIGERATION UNIT¤

ABOVE IS A SIMPLE DIAGRAM THAT SHOWS HOW A REFRIGERATOR WORKS. THE FLUID THAT IS GOING THROUGH THE COIL IS FREON. FREON STARTS OUT AS A LIQUID AT POINT A. AS THE FREON MOVES AROUND IT STARTS TO EVAPORATE INTO A GAS. ALL LIQUIDS NEED HEAT FOR EVAPORATION. AS THE GAS REACHES POINT B IT GOES INTO A CONDENSER WHERE IT LOSES HEAT AND BECOMES A LIQUID AGAIN.

FREON IS THE BEST FLUID TO USE IN REFRIGERATOR COILS. *C 1501

THE FREON ABSORBED THE HEAT IN THE REFRIGERATOR. *A 1502

THE REFRIGERATOR WOULD STILL WORK WITHOUT THE CONDENSOR. *B 1503

FREON IN A GASEOUS STATE CONTAINS MORE HEAT THAN FREON IN A LIQUID STATE. *A 1504

FREON MUST LOSE HEAT TO RETURN INTO A LIQUID STATE. *A 1505

WATER DOESN.T NEED HEAT TO EVAPORATE. *B 1506

THE TEMPERATURE INSIDE THE REFRIGERATOR IS LOWER AT NOON THAN AT 3 O CLOCK P.M. *C 1507

THE REFRIGERATOR WORKS ON THE PRINCIPLE OF RADIATION OF HEAT. *B 1508

THIS REFRIGERATOR RUNS ON ELECTRICITY RATHER THAN GAS. *C 1509

OPENING AND CLOSING OF THE REFRIGERATOR DOOR AFFECTS THE FREON. *A 1510

THE ICE ABSORBED THE HEAT FROM THE BLOCKS OF METALS. *A 1511

IF EACH METAL HAD BEEN HEATED TO A TEMPERATURE 10 DEG. HIGHER THAN THE ORIGINAL TEMPERATURE, THE OUTCOME OF THE EXPERIMENT WOULD HAVE BEEN DIFFERENT. *B 1512

THIS EXPERIMENT PROVES THE MELTING POINT OF ICE. *C 1513

AFTER HEATING THE METALS TO THE SAME TEMPERATURE, EACH HAD A DIFFERENT RATE OF MOLECULAR MOVEMENT. *B 1514

THE ALUMINUM ABSORBED MORE HEAT THAN THE OTHER METALS. *A 1515

EACH METAL BLOCK WAS HEATED TO 97 DEGREES F. *C 1516

THE COPPER ABSORBED MORE HEAT THAN THE IRON. *B 1517

THE FINAL RESULT OF THE EXPERIMENT WOULD HAVE BEEN THE SAME IF *EACH* BLOCK OF METAL HAD BE[illegible] HEATED TO A DIFFERENT TEMPERATURE. *B 1518

ICE IS A POOR CONDUCTOR OF HEAT. *C 1519

METALS ABSORB MORE HEAT THAN GLASS. *C 1520

DIRECTIONS - READ THE PASSAGE BELOW THEN READ THE STATEMENTS FOLLOWING. INDICATE - 0068
A. IF THE STATEMENT IS PROBABLY TRUE.
B. IF THE STATEMENT IS PROBABLY FALSE.
C. IF THERE IS NOT ENOUGH EVIDENCE TO MAKE A DECISION.

MATTER, A BLOCK OF METAL WEIGHING ONE POUND, WAS HEATED IN A PAN OF WATER. THEN IT WAS WEIGHED AGAIN. THE WEIGHT OF THE BLOCK REMAINED THE SAME.

MATTER HAS WEIGHT. *A 1521

THE TEMPERATURE OF THE METAL ROSE 10 DEGREES F. *C 1522

THE METAL WEIGHED ONE POUND AND 2 OUNCES AFTER BEING HEATED. *B 1523

HEAT HAS WEIGHT. *B 1524

HEAT IS NOT MATTER. *A 1525

HEAT IS NEEDED TO CHANGE THE TEMPERATURE. *A 1526

WHEN ICE IS LEFT IN A WARM ROOM, NOTHING HAPPENS TO THE MOLECULES. *B 1527

TEMPERATURE AND THE RATE OF MOLECULAR MOVEMENT ARE UNRELATED. *B 1528

WATER IS IMPORTANT TO SCIENTISTS IN THE STUDY OF HEAT. *C 1529

HEAT IS NEEDED TO CHANGE A SOLID TO A LIQUID. *A 1530

IT TAKES A LONGER TIME FOR ICE TO CHANGE FROM A SOLID TO A LIQUID THAN FROM A LIQUID TO A GAS. *C 1531

HEAT IS NEEDED TO CHANGE A LIQUID TO A GAS. *A 1532

ICE, WATER, AND WATER VAPOR ARE THE SOLID, LIQUID AND GAS STATES OF WATER. *A 1533

ADDING HEAT TO A SUBSTANCE MAKES ITS MOLECULES MOVE FASTER. *A 1534

WHEN ICE IS LEFT IN A WARM ROOM NOTHING HAPPENS TO ITS MOLECULES. *B 1535

READ THE DEFINITION OF ENERGY BELOW. THEN DISTINGUISH BETWEEN FACTS THAT ARE RELEVANT AND FACTS THAT ARE NOT RELEVANT IN DETERMINING HEAT AS A FORM OF ENERGY BY CORRECTLY IDENTIFYING THE PHRASES. 0069

A. RELEVANT
B. NOT RELEVANT

ENERGY CAN DO WORK OR CHANGE MATTER. ENERGY OFTEN COMES FROM MOTION. THE FASTER THE MOTION THE GREATER IS THE ENERGY. FORMS OF ENERGY CAN BE CHANGED FROM ONE KIND INTO ANOTHER. CHANGES IN ENERGY CAN GO BACK AND FORTH.

THE OCEAN CONTAINS MORE HEAT THAN A CUP OF BOILING WATER. *B 1536

THE ADDITION OF HEAT CAN CHANGE WATER FROM A SOLID TO A LIQUID. *A 1537

HEAT ENERGY CAN BE MADE BY LIGHT. *A 1538

CALORIE IS A MEASURE OF HEAT. *B 1539

HEAT ENERGY CAN BE MADE BY CHEMICALS. *A 1540

TEMPERATURE IS THE MEASURE OF THE RATE OF MOLECULAR MOTION. *B 1541

HEAT ENERGY CAN BE MADE BY ELECTRICITY. *A 1542

THE FASTER YOU RUB YOUR HANDS TOGETHER THE WARMER THEY BECOME. *A 1543

HEAT AND TEMPERATURE ARE NOT THE SAME. *B 1544

HEAT IS THE ENERGY PRODUCED BY MOLECULAR MOTION. *A 1545

READ THE FOLLOWING PARAGRAPH ABOUT A TOWN IN THE UNITED STATES. THEN DECIDE WHICH FACTS PRESENTED ARE RELEVANT OR IRRELEVANT IN DETERMINING THE CLIMATE OF THIS TOWN. CHOOSE 0070

A. RELEVANT
B. NOT RELEVANT

MARYVILLE IS A TOWN OF ABOUT 3.000 PEOPLE LOCATED IN THE SOUTHWESTERN PART OF THE UNITED STATES. MANY OF THE RESIDENTS HERE OWN AND OPERATE SEASIDE RESORT MOTELS. OTHERS EARN THEIR LIVING BY WORKING IN THE NEARBY FACTORIES. THE TOWN.S POPULATION HAS STEADILY GROWN SINCE 1950.

THE NAME OF THE TOWN WAS MARYVILLE. *B 1546

THE TOWN.S POPULATION HAS GROWN TO 3.000 SINCE 1950. *B 1547

THE TOWN IS LOCATED IN THE SOUTHWESTERN PART OF THE U.S. *A 1548

MANY OF THE RESIDENTS OWN AND OPERATE SEASIDE RESORTS. *A 1549

OTHERS WORK IN NEARBY FACTORIES. *B 1550

READ THE FOLLOWING PARAGRAPH ABOUT A BRIDGE THAT WARPED. THEN DISTINGUISH BETWEEN RELEVANT FROM IRRELEVANT FACTS THAT WOULD HELP TO EXPLAIN THE CAUSE OF THE WARPING. CHOOSE 0071

A. RELEVANT
B. IRRELEVANT

A BRIDGE WAS BUILT OVER THE WEST RIVER LOCATED IN THE MIDWEST. DURING THE MONTH OF MARCH. IT WAS A TWO LANE BRIDGE ONE FOURTH MILE IN LENGTH. THE BUILDER WAS J. H. SMITH & CO. THIS WAS NOT A DRAW BRIDGE. THEREFORE THE CONCRETE FOR THE BRIDGE WAS POURED AS ONE COMPLETE STRIP FROM BEGINNING TO END. TOWARD THE END OF JUNE THE SAME YEAR THE BRIDGE BEGAN TO WARP.

THE BRIDGE WAS OVER THE WEST RIVER. *B 1551

IT WAS BUILT DURING MARCH. *A 1552

IT WAS A TWO-LANE BRIDGE. *B 1553

THE BRIDGE WAS ONE-FOURTH OF A MILE LONG. *B 1554

IT WAS BUILT BY J. H. SMITH & CO. *B 1555

IT WAS *NOT* A DRAW BRIDGE. *B 1556

THE CONCRETE WAS POURED AS ONE COMPLETE STRIP FROM END TO END. *A 1557

THE BRIDGE BEGAN TO WARP IN JUNE. *A 1558

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THE STUDENT WILL DISPLAY HIS ABILITY TO DISTINGUISH BETWEEN FACTS THAT ARE RELEVANT AND FACTS THAT ARE NOT RELEVANT TO A SITUATION OR PROBLEM BY CORRECTLY IDENTIFYING THE RELEVANT PHRASES. %39□ 0141

READ THE FOLLOWING STATEMENT. CHOOSE *A* IF THE FACTS ARE RELEVANT TO THE STATEMENT. CHOOSE *B* IF THEY ARE *NOT* RELEVANT TO THE STATEMENT. 0021

AS LONG AS MAN HAS RAISED CROPS AS A SOURCE OF FOOD AND OTHER PRODUCTS, INSECT HAVE DAMAGED HIS CROPS. THE PROBLEM STILL EXISTS TODAY.

BETWEEN 1870 AND 1880, LOCUSTS ATE MILLIONS OF DOLLARS WORTH OF CROPS IN THE MISSISSIPPI VALLEY. *A 0886

MANY INSECTS ARE HELPFUL TO MAN. *B 887

BIRDS HELP MAN BY CATCHING AND EATING INSECTS. *B 0888

TODAY IN THE UNITED STATES THE COTTON BOLL WEEVIL DAMAGES ABOUT 800 MILLION DOLLARS WORTH OF CROPS EACH YEAR. *A 0889

THERE ARE MANY DIFFERENT KINDS OF INSECTS. *B 0890

ADDITIONAL MILLIONS OF DOLLARS ARE LOST EACH YEAR TO THE APPETITES OF PLANT-EATING INSECTS SUCH AS CORN BORERS, GYPSY MOTHS, AND POTATO BEETLES. *A 0891

YOU ARE DOING A REPORT ON THE LOCOMOTION AND REPRODUCTION ABILITY OF THE AMOEBA FOR CLASS. READ THE FOLLOWING STATEMENTS AND DECIDE WHICH OF THEM WOULD HELP YOU. CHOOSE *A* IF THE STATEMENTS ARE RELEVANT. CHOOSE *B* IF THEY ARE *NOT* RELEVANT. 0350

THE PSEUDOPODS OF AN AMOEBA MOVE FORWARD AND SURROUND FOOD PARTICLES. *A 0892

WHEN THE AMOEBA DIES, IT CEASES TO MOVE. *B 0894

WHEN THE AMOEBA HAS GROWN TO A CERTAIN SIZE, IT REPRODUCES BY DIVIDING IN TWO. *A 0895

THE AMOEBA MOVES FORWARD BY PUSHING OUT LITTLE FINGERLIKE EXTENSIONS CALLED PSEUDOPODS. *A 0896

THE AMOEBA IS A SINGLE CELL ANIMAL WHICH CAN BE SEEN ONLY WITH A MICROSCOPE. *B 0897

EACH OF THE SIX PARTS OF THE AMOEBA HAVE A SPECIAL NAME. *B 0898

YOU ARE DOING A REPORT ON THE AMOEBA FOR YOUR CLASS. BELOW ARE PARAGRAPHS ABOUT THE AMOEBA. DECIDE WHICH OF THEM WOULD HELP YOU. 0022
CHOOSE THE LETTER OF THE CORRECT ANSWER.

DARRYL HAD ALWAYS WANTED TO HAVE AN IMAGINARY PET. ONE DAY AS DARRYL WAS LOOKING IN HIS MICROSCOPE HE SAW SOMETHING MOVING. HE DECIDED IT MUST BE AN AMOEBA. WHAT FUN IT WAS TO FIND ANIMALS 0899

IN DROPS OF WATER. DAREYL DECIDED LIVE ANIMALS WERE DEFINITELY MORE FUN THAN IMAGINARY ONES.

A. THIS PARAGRAPH HELPS
*B. THIS PARAGRAPH DOES NOT HELP

THE AMOEBA IS A SINGLE CELL ANIMAL. IT CAN NOT BE SEEN BY THE NAKED EYE. TO SEE AN AMOEBA, YOU MUST USE A MICROSCOPE. PLACE A DROP OF POND WATER ON A MICROSCOPE SLIDE. LOOK FOR A MASS OF JELLY THAT CAN MOVE AND CHANGE SHAPE QUICKLY. CHANCES ARE YOU HAVE SEEN AN AMOEBA. 0900

*A. THIS PARAGRAPH HELPS
B. THIS PARAGRAPH DOES NOT HELP

THE AMOEBA AND EUGLENA ARE QUITE DIFFERENT. THE EUGLENA AND AMOEBA BOTH ARE SINGLE CELL ORGANISMS BUT THE EUGLENA IS GREEN IN COLOR. THIS GREEN COLOR IS CAUSED BY CHLOROPHYLL A SUBSTANCE FOUND IN PLANTS. SCIENTISTS ARE STILL NOT SURE WHETHER TO CALL A EUGLENA A PLANT OR AN ANIMAL. SOME SCIENTISIS HAVE SOLVED THIS DILEMMA BY CALLING THE EUGLENA HALF PLANT, HALF ANIMAL. 0901

A. THIS PARAGRAPH HELPS
*B. THIS PARAGRAPH DOES NOT HELP

THE AMOEBA POSSESS ALL OF THE LIFE FUNCTIONS OF ANY OTHER ANIMAL. IT CAN MOVE EASILY FROM PLACE TO PLACE BY MEANS OF FINGER LIKE PSUEDOPODS. IT CAN GET FOOD AND DIGEST IT. THIS DIGESTED FOOD TURNS INTO A LIQUID. THE LIQUID BECOMES PART OF THE JELLY LIKE MASS CALLED PROTOPLASM. THE AMOEBA ALSO BREATHS, REMOVES ITS WASTE AND REPRODUCES BY DIVIDING IN TWO. 0902

*A. THIS PARAGRAPH HELPS
B. THIS PARAGRAPH DOES NOT HELP

CHOOSE THE LETTER BEFORE THE FACT WHICH WOULD BEST HELP YOU TO WRITE A PARAGRAPH ON THE FOLLOWING IDEAS ABOUT PLANTS AND SEEDS. 0023

SOME INSECTS DESTROY PLANTS. 906
A. CERTAIN WORMS EAT THE FRUIT OF PLANTS.
*B. SOME INSECTS LIKE THE SWEET LIQUID IN CERTAIN FLOWERS.
C. SOME INSECTS USE THE LEAVES OF PLANTS AS PROTECTION.

SEEDS ARE FOUND IN MANY DIFFERENT PLACES ON PLANTS. 0907
A. SEEDS ARE OF MANY DIFFERENT SHAPES.
*B. MANY PLANTS GROW SEEDS IN CLUSTERS AT THE TOP OF THEIR STEMS.
C. BIRDS LIKE TO EAT SEEDS.

MOST PLANTS GROW FROM SEEDS. 909
*A. FRUIT TREES ARE ONE KIND OF PLANT THAT GROW FROM SEEDS.
B. SEEDS NEED WATER IN ORDER TO GROW.
C. SOME FRUIT

PLANTS ARE USEFUL TO US. 910
A. PLANTS OFTEN LOOK GOOD AND SMELL NICE.
*B. MANY PLANTS GIVE US FOOD.
C. SOME ANIMALS MAKE THEIR HOMES UNDER PLANTS.

LEAVES ARE IMPORTANT TO MOST PLANTS. 911

*A. FEED FOR SOME PLANTS IS MADE IN ITS LEAVES.
B. LEAVES SOMETIMES MAKE A PLANT MORE BEAUTIFUL.
C. LEAVES OF SOME PLANTS CHANGE COLOR IN AUTUMN.

STEMS ARE AN IMPORTANT PART OF MANY PLANTS. 0912
A. SOME STEMS ARE THORNY.
*B. STEMS CARRY WATER AND FOOD TO THE LEAVES AND FRUIT OF THE PLANT.
C. SOME STEMS ARE VERY THICK.

YOU ARE WRITING A REPORT ON THE TYPES OF HOMES OF DIFFERENT ANIMALS. READ THE FOLLOWING STATEMENTS. IF THE STATEMENT WOULD BE RELEVANT TO THE TOPIC CIRCLE THE *A*, IF NOT CIRCLE THE *B*.

WASPS LIVE IN A NEST. *A 913

SOME ANIMALS ARE COVERED WITH HAIR. *B 914

FISH LIVE IN WATER. *A 915

SOME ANIMALS MAKE GOOD PETS. *B 916

SOME ANIMALS DIG INTO THE GROUND TO LIVE. *A 0917

YOU ARE WRITING A REPORT ON HOW ANIMALS SECURE FOOD. READ THE FOLLOWING STATEMENTS. IF THE STATEMENT WOULD BE RELEVANT TO THE TOPIC, CIRCLE THE *A*, IF NOT CIRCLE THE *B*.

MANY ANIMALS MUST HUNT FOR FOOD. *A 918

SOME ANIMALS ARE VERY FIERCE. *B 919

ANIMALS USUALLY MAKE THEIR HOMES SO FOOD AND WATER WILL BE CLOSE BY. *A 0920

SOME ANIMALS EAT PLANTS, SOME EAT OTHER ANIMALS. *A 0921

YOU ARE WRITING A REPORT ON THE DIFFERENT WAYS ANIMALS PROTECT THEMSELVES. READ THE FOLLOWING STATEMENTS. IF THE STATEMENT WOULD BE RELEVANT TO THE TOPIC, CIRCLE THE *A*, IF NOT CIRCLE THE *B*.

CATS PROTECT THEMSELVES WITH THEIR CLAWS AND TEETH. *A 0922

SOME ANIMALS PROTECT THEMSELVES BY BEING ABLE TO RUN FAST. *A 0923

MANY ANIMALS LIVE IN THE JUNGLE. *B 924

COLOR HELPS PROTECT SOME ANIMALS FROM THEIR ENEMIES. *A 0925

YOU ARE WRITING A REPORT ON HOW ANIMALS ARE BENIFICIAL TO MAN. READ THE FOLLOWING STATEMENTS. IF THE STATEMENT WOULD BE RELEVANT TO THE TOPIC, CIRCLE THE *A*, IF NOT CIRCLE THE *B*.

A RAT IS HARMFUL AND IS CALLED A PEST. 930

SOME ANIMALS, SUCH AS SHEEP, GIVE US MATERIAL FOR CLOTHING. 0931

SOME ANIMALS ARE USEFUL BECAUSE THEY GIVE US FOOD. 0932

ANIMALS OFTEN HELP EACH OTHER. 933

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THE STUDENT WILL DISPLAY HIS ABILITY TO DISTINGUISH BETWEEN FACTS THAT ARE RELEVANT AND FACTS THAT ARE NOT RELEVANT TO A SITUATION OR PROBLEM BY CORRECTLY IDENTIFYING THE RELEVANT PARAGRAPHS. %7n 0142

READ THE PARAGRAPH. 24

YOU ARE STUDYING AIR TRANSPORTATION AND HAVE LEARNED THAT FOG IS AN ENEMY TO AIRLINES AND AIRPORT OPERATORS. YOU WANT TO WRITE A REPORT ON WAYS TO FIGHT FOG AND ARE GOING TO DO MORE READING TO LOCATE INFORMATION.

READ EACH OF THE FOLLOWING PARAGRAPHS AND TELL WHICH OF THEM WOULD HELP YOU FIND INFORMATION IN FIGHTING FOG.
CHOOSE *A* IF THE PARAGRAPH IS RELEVANT, CHOOSE *B* IF IT IS NOT RELEVANT.

FOG IS A CONCENTRATION OF TINY WATER DROPLETS SUSPENDED IN THE AIR. IT MOST OFTEN OCCURS WHEN WARM, MOIST AIR IS SUDDENLY COOLED. WHEN THE WHITE, MISTY BLANKET HIDES RUNWAYS, AIRPLANES CANNOT TAKE OFF OR LAND. CHANGES IN FLIGHT SCHEDULES COST THE AIRLINES SEVERAL MILLION DOLLARS EACH YEAR. *B 0934

IN 1968, A NEW FOG-SWEEPING MACHINE WAS TESTED FOR DISSIPATING THE MOST COMMON KIND OF FOG, WHICH OCCURS AT TEMPERATURES ABOVE FREEZING. THE MACHINE CONSISTED OF A 100-FOOT-LONG PLASTIC TUBE MOUNTED ON A MOBILE BLOWER. AS THE MACHINE MOVED ACROSS THE AIRPORT, CHEMICALS WERE BLOWN THROUGH THE TUBE AND UP INTO THE FOG. ONE OF THE CHEMICALS REDUCED THE SURFACE TENSION ON THE WATER DROPLETS SO THAT THEY WOULD JOIN TOGETHER MORE EASILY. THEY ALLOWED THE DROPLETS TO FALL AS RAIN. *A 0935

COLD FOG, WHICH OCCURS AT TEMPERATURES BELOW FREEZING, CAUSES A SMALL PERCENTAGE OF AIRPORT SHUTDOWNS, AND IS FAIRLY EASY TO ELIMINATE. HOWEVER, COLD FOG TOGETHER WITH SNOW OR ICE COVERED RUNWAYS CAN BE AS HAZARDOUS AS THE MORE DENSE WARM WEATHER FOG. *B 0936

FOG CAUSES AIRPORTS TO SEND SCHEDULED FLIGHTS TO OTHER AIRPORTS NEARBY. THIS, TOO, CAN BE VERY DANGEROUS. THE NEW GIANT JETS NEED LONGER RUNWAYS TO LAND THAN DO THE REGULAR PASSENGER JETS. MANY OF THE SMALLER AIRPORTS DO NOT HAVE RUNWAYS LONG ENOUGH TO ALLOW THE NEW JETS TO LAND WITH SAFETY, BUT FOG OFTEN FORCES THE HUGE AIRCRAFT TO USE SMALL AIRPORTS. *B 0937

IN 1969, THE UNITED STATES AIR FORCE ANNOUNCED A PLAN FOR USE WHEN WARM, DRY AIR LIES OVER A LAYER OF COLD FOG. A HELICOPTER HOVERS OVER THE FOG LAYER. THE WHIRLING ROTOR BLADES PUSH WARM, DRY AIR DOWN TO MIX WITH THE FOGGY LAYER AND CAUSE THE WATER DROPLETS TO EVAPORATE. *A 0938

FOR QUITE A FEW YEARS, AIRPORTS HAVE USED CLOUD-SEEDING METHODS TO DISSIPATE COLD FOG. AN AIRPLANE DROPS CRYSTALS OF DRY ICE INTO THE FOG. SOON, SNOW FALLS AND THE AIR CLEARS. *A 0939

WHICH OF THE FOLLOWING THREE STATEMENTS TELLS BEST WHAT YOU WERE READING TO FIND OUTO 0940

A. WAYS AIRPORTS FIGHT FOG.
*B. WHY FOG IS DANGEROUS.
C. WHAT CAUSES FOG.

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THE STUDENT WILL DEMONSTRATE HIS ABILITY TO RECOGNIZE DEGREES OF DIFFICULTY IN PROOF BY SELECTING THE ONE THAT WOULD BE MORE DIFFICULT TO PROVE THAN THE OTHERS. %5□ 0228

CHOOSE THE CORRECT ANSWER.

1

WHICH OF THE FOLLOWING WOULD BE *MOST* DIFFICULT TO PROVE TRUE OR FALSEO 1489
A. THE TEMPERATURE OF A ROOM IS 78 DEG. F.
B. METALS EXPAND WHEN HEATED.
*C. THE IDEAL TEMPERATURE IS FOUND IN HAWAII.
D. GASES EXPAND WHEN HEATED.

WHICH OF THE FOLLOWING WOULD BE *MOST* DIFFICULT TO PROVE TRUE OR FALSEO 1490
*A. THE HIGHER THE TEMPERATURE OF COFFEE THE BETTER IT TASTES.
B. THE OCEAN CONTAINS MORE HEAT THAN A CUP OF HOT COFFEE.
C. HEAT FROM A CUP OF HOT COFFEE IS MOVED TO THE HANDLE BY CONDUCTION.
D. THE TEMPERATURE OF THE COFFEE IS 105 DEGREES F.

WHICH OF THE FOLLOWING WOULD BE *MOST* DIFFICULT TO PROVE TRUE OR FALSEO 1491
A. A MERCURY THERMOMETER SHOWS THE RISE AND FALL OF TEMPERATURE.
*B. THE TEMPERATURE IS TOO HOT FOR TENNIS.
C. THE TEMPERATURE IS RELATED TO MOLECULAR MOVEMENT.
D. HEAT AND TEMPERATURE ARE NOT THE SAME THING.

WHICH OF THE FOLLOWING WOULD BE HARDEST TO PROVE TRUE OF FALSEO 1494
A. THE BODY TEMPERATURE IS ABOUT 98.6 DEGREES F.
*B. PEOPLE CAN,T THINK CLEARLY WHEN THE AIR TEMPERATURE IS HOT.
C. FRICTION CAUSES HEAT.

WHICH OF THE FOLLOWING WOULD BE HARDEST TO PROVE TRUE OR FALSEO 1495
A. METALS CONTRACT WHEN COOLED.
B. MOLECULES MOVE CLOSER TOGETHER WHEN COOLED.
*C. HOT BATHS ARE MORE ENJOYABLE THAN COOL BATHS.
D. GASES CONTRACT WHEN COOLED.

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THE STUDENT WILL ANALYZE STATEMENTS DRAWN FROM A GIVEN PARAGRAPH, BY IDENTIFYING THE STATEMENTS AS EITHER STATED OR UNSTATED ASSUMPTIONS. %11□ 0229

READ THE FOLLOWING SELECTION, IF THE STATEMENT BELOW THE PARAGRAPH IS A STATED ASSUMPTION, CHOOSE THE *A*, IF THE STATEMENT IS AN UNSTATED ASSUMPTION, CHOOSE THE *B*. 0072

ICE IS WATER IN ITS SOLID STATE. IF YOU WERE TO LEAVE A BLOCK OF ICE IN A WARM ROOM, THE ICE WOULD SOON TURN TO A LIQUID. THE HEAT IN THE ROOM CAUSES THE ICE TO MELT, OR CHANGE FROM A

SOLID TO A LIQUID. AS THE WATER IS HEATED STILL MORE, IT BEGINS TO BOIL AND CHANGES FROM A LIQUID TO A GAS. WATER IN ITS GASEOUS STATE IS CALLED WATER VAPOR. THE THREE SUBSTANCES ARE DIFFERENT BECAUSE OF THE WAY THE MOLECULES MOVE IN EACH OF THEM.

THE THREE STATES OF MATTER ARE SOLID, LIQUID AND GAS. *B 1559

WATER CAN BE CHANGED INTO 3 STATES OF MATTER. *A 1560

HEAT IS NEEDED TO CHANGE THE TEMPERATURE. *B 1561

HEAT IS NEEDED TO CHANGE A SOLID TO A LIQUID. *A 1562

HEAT IS NEEDED TO CHANGE A LIQUID TO A GAS. *A 1563

THE MOLECULES ARE MOVING FASTER IN THE WATER VAPOR THAN IN THE ICE. *B 1564

THERE IS A DIFFERENCE IN THE MOVEMENT OF MOLECULES IN WATER AND ICE. *A 1565

THE MOLECULES IN WATER NEVER STOP MOVING. *B 1566

AS HEAT IS ADDED TO WATER, THE MOLECULES MOVE FURTHER APART. *B 1567

THERE ARE MOLECULES IN ICE, WATER, AND WATER VAPOR. *A 1568

MERCURY THERMOMETERS ARE BETTER THAN ALCOHOL THERMOMETERS. *B 1569

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MEASUREMENT

THE STUDENT CAN DEMONSTRATE KNOWLEDGE OF THE FAHRENHEIT AND CENTIGRADE %CELSIUS¤ SCALES FOR MEASURING TEMPERATURE BY IDENTIFYING RELATIONSHIPS BETWEEN THE DIFFERENT SCALES. %4¤ 0202

CHOOSE THE CORRECT ANSWER. 1

0 DEGREES C. AND 32 DEGREES F. ARE BASED ON A COMMON POINT. THIS POINT IS 1303
  A. THE BODY TEMPERATURE OF MAMMALS.
 *B. THE FREEZING POINT OF WATER.
  C. THE FREEZING POINT OF ALCOHOL.
  D. THE FREEZING POINT OF MERCURY.

WHAT TEMPERATURE ON THE FAHRENHEIT SCALE IS EQUAL TO 100 DEG. ON THE CENTIGRADE SCALEO 1304
  A. 100 DEGREES F.
  B. 180 DEGREES F.
 *C. 212 DEGREES F.
  D. ZERO DEGREES F.

A TEMPERATURE INCREASE OF ONE DEGREE ON THE CENTIGRADE SCALE REPRESENTS AN INCREASE OF HOW MANY DEGREES ON THE FAHRENHEIT SCALEO 1305
 *A. 5/9 OF ONE DEGREE

B. 2.001 DEGREES
C. 1 DEGREE
D. 1.8 DEGREES

IN CHANGING A FAHRENHEIT TEMPERATURE TO THE CENTIGRADE SCALE IT IS NECESSARY TO 1306
*A. SUBTRACT 32 DEGREES.
B. ADD 32 DEGREES.
C. MULTIPLY BY 1.8 DEGREES.
D. DIVIDE BY 1.8 DEGREES.

****

THE STUDENT WILL DEMONSTRATE HIS UNDERSTANDING OF THE RELATIONSHIP BETWEEN FAHRENHEIT AND CENTIGRADE BY CORRECTLY CHOOSING ITS EQUAL EXPRESSED IN TERMS OF CENTIGRADE OR VICE VERSA. %2□ 0217

CHOOSE THE CORRECT ANSWER. 1

50 DEGREES FAHRENHEIT EXPRESSED IN TERMS OF CENTIGRADE IS 1421
A. 122 DEG.
B. 18 DEG.
C. 25 DEG.
*D. 10 DEG.
E. 90 DEG.

50 DEGREES CENTIGRADE EXPRESSED IN TERMS OF FAHRENHEIT IS 1422
*A. 90 DEG.
B. 18 DEG.
C. 122 DEG.
D. 10 DEG.
E. 25 DEG.

****

THE STUDENT WILL RECALL THE DEFINITION OF A SMALL CALORIE BY SELECTING THE CORRECT RESPONSE THAT APPLIES TO A SMALL CALORIE. %2□ 0218

CHOOSE THE CORRECT ANSWER. 1

A SMALL CALORIE IS THE AMOUNT OF HEAT NEEDED TO RAISE 1423
A. ONE GRAM OF WATER THROUGH ONE DEGREE FAHRENHEIT.
*B. ONE GRAM OF WATER THROUGH ONE DEGREE CENTIGRADE.
C. ONE OUNCE OF WATER THROUGH ONE DEGREE FAHRENHEIT.
D. ONE OUNCE OF WATER THROUGH ONE DEGREE CENTIGRADE.

THE DEFINITION OF A B.T.U. IS THE AMOUNT OF HEAT NEEDED TO RAISE THE TEMPERATURE OF ONE POUND OF WATER ONE DEGREE FAHRENHEIT. THE BTU.S EQUIVALENT IN THE METRIC SYSTEM IS THE 1424
A. LARGE CALORIE.
B. CENTIGRADE.
C. GRAM.
*D. SMALL CALORIE.

****

THE STUDENT WILL APPLY HIS KNOWLEDGE OF A SMALL CALORIE BY 0225

SELECTING THE CORRECT RESULT OF AN EXPERIMENT. %1□

CHOOSE THE CORRECT ANSWER. 1

EIGHTEEN DROPS OF WATER WERE PUT INTO A TEST TUBE. THE TEMPERATURE OF THIS WATER WAS MEASURED BY A CENTIGRADE THERMOMETER. THE TEST TUBE WAS HELD OVER AN ALCOHOL BURNER FOR 20 SECONDS. THE TEMPERATURE OF THE WATER WAS TAKEN AGAIN, IT ROSE 20 CENTIGRADE DEGREES. 1467

THE WATER IN THE TEST TUBE GAINED 20 DEGREES C. AND 1467
A. 20 SECONDS.
B. 20 GRAMS.
*C. 20 SMALL CALORIES.
D. 20 LARGE CALORIES.

****

THE STUDENT CAN SHOW HIS UNDERSTANDING OF THE METRIC SYSTEM BY CONVERTING GIVEN METRIC MEASUREMENTS TO HIGHER AND LOWER UNITS OF THE SYSTEM. %4□ 0257

CHOOSE THE CORRECT ANSWER. 1

8 CM. IS THE *SAME* AS . 1656
A. 8 DM.
*B. 80 MM.
C. 800 MM.
D. NONE OF THESE

50 MM. IS THE *SAME* AS . 1657
*A. 5 CM.
B. 5 DM.
C. 500 CM.
D. NONE OF THESE

18 DM. IS *SHORTER* THAN . 1658
A. 900 MM.
*B. 200 CM.
C. 1 M.
D. NONE OF THESE

LONGER THAN 1 METER - 1659
A. 9 DM.
B. 85 CM.
*C. 1200 M.
D. NONE OF THESE

****

USING A CHART OF 4 BASIC CONVERSION FACTORS, THE STUDENT WILL SHOW HIS UNDERSTANDING OF CONVERSION BY CONVERTING GIVEN MEASUREMENTS FROM THE ENGLISH TO METRIC SYSTEM OR VICE-VERSA. %8□ 0261

YOU HAVE USED *CONVERSION FACTORS* FOR METERS, CENTIMETERS, YARDS, AND INCHES. NOW BELOW YOU SEE FOUR *CONVERSION FACTORS* FOR *LIQUID* MEASURE IN THE ENGLISH AND METRIC SYSTEMS. USE THESE FACTORS TO SOLVE THE FOLLOWING SITUATIONS. 0079

GIVEN -
1 LITTER EQUALS 1.06 QUART
1 CENTILITER EQUALS .34 FL. OZ.
1 QT. EQUALS .94CL.
1 FL. OZ. EQUALS 2.94 CL.

JIM,S PET WORM IS 5 INCHES LONG. HOW MANY CENTIMETERSO 1675
A. 1.95 CM.
B. 7.54 CM.
*C. 12.70 CM.
D. 11.70 CM.

TOM,S BABY SISTER IS 2 FEET TALL. HOW MANY CENTIMETERS TALL IS SHEO 1676
A. 9.36 CM.
*B. 60.96 CM.
C. 26.54 CM.
D. 61.06 CM.

ONE FOOT IS EQUAL TO 1677
A. 12.54 CM.
B. 4.68 CM.
*C. 30.48 CM.
D. 14.54 CM.

PATTI GREW 6 CM. LAST YEAR. HOW MANY CENTIMETERSO 1678
*A. 2.34 IN.
B. 2.25 IN.
C. 15.24 IN.
D. 12.24 IN.

JOHN THREW A BASEBALL 55 YARDS. HOW MANY METERS IS THISO 1679
A. 59.95 CM.
B. 50.95 CM.
*C. 50.05 CM.
D. 49.05 CM.

IN EUROPE, TRACK MEN RUN THE 100 METER DASH. HOW MANY YARDS IS THIS RACEO 1680
A. 910.00 YARDS
B. 91.00 YARDS
C. 10.90 YARDS
*D. 109.00 YARDS

PEGGY,S PET FROG WON A JUMPING CONTEST WITH A LEAP OF 80 CM. HOW MANY INCHES WAS THISO 1681
A. 203.20 IN.
B. 163.20 IN.
C. 21.20 IN.
*D. 31.20 IN.

ALLAN MEASURES A SMALL TREE WITH A METRIC RULER. IT MEASURES 3 METERS. HOW MANY YARDS IS THISO 1682
*A. 3.27 YARDS
B. 4.09 YARDS
C. 3.91 YARDS
D. 2.73 YARDS.

****

THE STUDENT CAN SHOW HIS COMPREHENSION OF THE STANDARD 0259
MEASURES OF BOTH THE ENGLISH AND METRIC SYSTEMS BY
ESTIMATING THE SIZE OF COMMON OBJECTS. %3□

THESE QUESTIONS ASK YOU TO COMPARE MEASUREMENTS TO THINGS IN THIS CLASSROOM. YOU CAN SEE ALL OF THESE THINGS FROM YOUR DESK. LOOK AT THEM BEFORE YOU CHOOSE YOUR ANSWERS. 0078

CLOSEST TO ONE METER IN LENGTH - 1667
A. MR. RHODY.
*B. MR. RHODY,S ARM.
C. MR. RHODY,S HAND.
D. MR. RHODY,S HEAD.

CLOSEST TO ONE CENTIMETER IN LENGTH - 1669
A. YOUR THUMB.
B. A BALL-POINT PEN.
*C. THE STAPLE IN THE TOP CORNER OF THIS QUIZ.
D. A WIRE PAPER CLIP.

****

THE STUDENT WILL DEMONSTRATE HIS COMPREHENSION OF THE 0260
DECIMAL BASIS OF METRIC UNITS, LEARNED THROUGH *LINEAR*
METRIC MEASURE, BY IDENTIFYING RELATIVE SIZES OF LIQUID METRIC
UNITS. %5□

CHOOSE THE CORRECT ANSWER. 1

20 CENTILITERS IS THE *SAME* AS 1670
A. 20 MILLILITERS.
B. 200 DECILITERS.
C. 2 LITERS.
*D. NONE OF THESE.

3 LITERS IS THE *SAME* AS 1671
A. 3 DECILITERS.
B. 3000 CENTILITERS.
*C. 3000 MILLILITERS.
D. NONE OF THESE.

850 MILLILITERS IS LESS THAN 1672
A. 8 DECILITERS.
B. 400 CENTILITERS.
*C. 1 LITER.
D. NONE OF THESE.

8 DECILITERS IS MORE THAN 1673
A. 1 LITER.
*B. 700 MILLILITERS.
C. 85 CENTILITERS.
D. NONE OF THESE.

MORE THAN ONE LITER... 1674
*A. 11 DECILITERS
B. 100 CENTILITERS
C. 500 MILLILITERS
D. NONE OF THESE

INDEX

- Amoeba 130,134-135
- Animals 18-27
  - Characteristics 18-27,136
  - Classification 19-20
  - Insects 25-27
    - Characteristics 25-26
    - Social 26-27
  - Invertebrates
  - Living thing and their environment 19-20
  - Microorganism 23
  - Vertebrates 19-20
- Asteroids 96
- Atom 107
  - Structure 107
- Batteries 87-88
- Bernoulli's Principle 119
- Body 1-18
  - Characteristics 1-2
  - Circulation 8-10
  - Digestion 2-7
  - Framework 12-15
    - Fractures 14
    - Joints 15
  - Nervous System 10-12
  - Reproduction 15-16
  - Respiration 7-8
  - Senses 6-9
- Calorie 140-141
- Cells 22-25
- Centigrade 139-140
- Chemical weathering 77-78
- Circulation 8-10
- Clouds 81-82
- Color 55-56
  - Doppler effect 55-56
  - Spectrum 55
- Compound 43-44
- Critical Thinking 124-139
  - Central Idea 124-128
  - Difficulty of Proof 138
  - Distinguishing fact from Opinion 128-130
  - Drawing inferences 130-133
  - Relevant vs. Non-relevant data 134-138
  - Stated and unstated assumptions 130,138-139
- Circuitry 85-89
  - Complete 87
  - Parallel 86-87
  - Series 86-87
  - Short
- Density 120-121
- Digestion 2-7
- Doppler Effect 55-56
- Earth Science
  - Ages of Stream 66-68
  - Earthquakes 60
  - Erosion 57
  - Geology 56
    - Rock cycle 60-62
  - Glaciation 68-69
  - Land surfaces 56-57
  - Mineral Testing Techniques 62
  - Volcano 63-66
- Electricity 85-90
  - Batteries 87-88
  - Circuitry 85-89
  - Conductors 85-86,89-90
  - Current 87
  - Electromagnets 86
  - Importance of 90
  - Static 87
- Electromagnets 86
- Element 43-44
- Energy
  - Atomic 120
  - Definition 107-108
  - Kinetic 108,112-113,119
  - Potential 108

- Escape velocity 96-97
- Fahrenheit 139-140
- Flower 29-30,36
- Fractures 14
- Friction 105-107
  - Examples of 106
  - Properties 105-107
- Fuse 85
- Galaxies 92
- Gas 44-49
  - Definition 46
  - Examples 44-49
- Geology 56
- Glaciation 68-69
- Gravity
  - Definition 103-104
  - Effects of 110-111,113
- Heat
  - Movement 114,116
    - Conduction 114
    - Convection 114
    - Radiation 114
  - Sources 113-114
  - Transfer 116
- Hypothesis 120
- Immunity 16
- Infection 14-18
- Insects 25-27
  - Characteristics 25-26
  - Social 26-27
- Insulation, electrical 85-86
- Invertebrates 19-20
- Kinetic energy 108,112-113,119
- Light
  - Path of 122
  - Properties 121-122
  - Production of 123
  - Reflection 122-123
- Liquid 44 -49
- Machines 83-84
  - Mechanical Advantage 83
  - Types 83-84
  - Work 83
- Matter
  - Chemical change 43
  - Compound 43-44
  - Decomposition of 54-55
  - Element 43-44
  - Expansion of 53
  - Mixture 44
  - Physical 43
  - Properties of 53-54
    - Density 54
  - States of 41-42,49-51
    - Gas 44-49,138-139
    - Liquid 44-49
    - Solid 44-49
  - Synthesis 54-55
- Measurement 139-143
  - Calorie 140-141
  - Centigrade 139-140
  - Fahrenheit 139-140
  - Metric system 141-143
- Mechanical weathering 76-77
- Mechanics
  - Acids and bases 109-111
  - Atom 107
  - Bernoulli's Principle 119
  - Energy 107-108
  - Friction 105-107
  - Gravity 103-104,110-111,113
  - Molecular theory 104-105
118-119
  - Newton, Sir Isaac 108,111
- Metric System 141-143
- Microorganism 23
- Microscope 124
- Minerals 62
- Mixture 44
- Molecule
  - Effects 117,119
  - Movement 118-119
  - Theory 104-105
- Moon 99-100
  - Revolution 99
  - Size 99
  - Surface features 99-100
- Nervous System 10-12
- Newton, Sir Isaac 109-111
- Nitrogen cycle 32

Oceanography 56-57
  Erosion 56-57

Planets 91-101
  Asteroid 96
  Constellations 92-93
  Descriptive facts 91-92,95-96
  Galaxies 92
  Moon 99-100
  Revolution 97
  Sun 97-98

Plants
  Adaptation 34-35
  Analogies 36-38
  Cells 32-33,38-40
  Characteristics 40-41
  Classifications 29,34
  Dicots 34
  Flower Parts 29-30,36
  Food Sources 30-31
  Monocots 34
  Nitrogen Cycle 32
  Parts 27-28
  Photosynthesis 35-38
  Tissue 28

Potential energy 108

Reproduction 15-16

Respiration 7-8

Rocket 111

Rocks 60-71
  Cycle 60-62
  Formation 69
  Relationships, Analogous 70-71

Seasons 78-79

Sedimentary Rock 59-60

Seismograph 60

Senses 7-8

Skeletal System 12-15

Soil 71
  Profile 71

Solid 44-49

Sound 119
  Speed of 119

Space Exploration 96-103
  Astronauts 102
  Escape velocity 96-97
  Gemini Program 101-102
  Mercury Program 101-102
  Rocket 111
  Satellite 103

Spectrum 65

Static electricity 87

Sun 100-101

Tornadoes 75

Vertebrates 19-20

Volcano 63-66
  Eruptions 64
  Faults 64-66
  Parts 63-64

Weather
  Air Pressure 80-81
  Atmospheric layers 75-76
  Chemical weathering 77-78
  Clouds 81-82
    Types 81-82
  Cold Front 81
  Condensation 79-80
  Evaporation 79
  Instruments 73-74
  Mechanical weathering 76-77
  Meteorologist 74
  Patterns 78
  Predictions 72-73
  Tornadoes 75
  Warm Front 82
  Water cycle 79

Work 117
  Definition 117
  Computations 117